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Chapter III.3.2 Randles Final.

*A new social contract, de-facto responsible innovation, and institutional change:*

*The case of Arizona State University (ASU)*

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**ABSTRACT**

This chapter charts the transformational journey of Arizona State University (ASU). It is an account of radical institutional change, an experiment in organisational (re)-design demonstrating the central orienting tenets of a new social contract between (publicly funded) universities and society. Inspired by a set of design principles which have been adaptively debated, developed and implemented since Michael Crow took the helm as ASU President in 2002, the transformation puts centre stage three principles. First, *access*, to a broad and diverse base of students, seeking to create a student profile which reflects the ethnic and income demographic of the State of Arizona. Second, *research excellence*, interpreted as research which is relevant and engaged with society. Third, *impact*, an ethos to achieve the integration of portfolios of teaching, research and engagement activities around their contribution to addressing pressing societal problems. In championing these changes, Crow and colleagues made a direct challenge to the incumbent Ivy League universities, which they consider elitist, exclusive, and out of touch with civic life or broader societal challenges and responsibilities. In understanding this story as an account of *de-facto* responsible innovation the chapter pays special attention to *how* the transformation was achieved via an analytical frame comprising four cornerstones of the Normative Business Model (NBM): i) the normative orientations and values driving the institutional change ii) (De)institutionalisation of the incumbent model iii) the role played by institutional entrepreneurs especially the university leadership iv) the governance instruments and financial model used to underpin and drive the change. The local-global implications of the ASU model are discussed in the conclusion.

1.0 A new social contract between universities and society.

***At the heart of the ASU case is a fundamental, and yet a shifting and contested discourse, about the role of publicly funded universities in society.*** The ASU experience demonstrates through one institutional experiment, a particular example of what that role should be, according to the ASU leadership. Simultaneously, the case demonstrates a successful challenge to the incumbent model deeply prevailing in the higher echelons of the HEI sector, not just in the USA but across the world. It is worth beginning this chapter with a reprise of that confrontation, albeit artificially stylised, between the incumbent model of the relationship of the university to society, and the contemporary challenge to it, exemplified by the ASU case.

Rip<sup>i</sup> and Smit summarise this debate (Rip and Smit 1991). Since the 17<sup>th</sup> century in Britain exemplified by Oxford and Cambridge and the Humboltian model emerging in Germany in the mid 18<sup>th</sup> century and fully formed by the mid 19<sup>th</sup> (Watson 2010), the role of science in society has been epitomised as the independent pursuit of knowledge, unfettered by contamination by other interests: political, societal, commercial or religious. The role of the university in society was to maintain an independent critical distance from these compromising influences. The ideal of 'pure' knowledge was not to be measured against its service to other sectors of society, but by the more inward facing constant and critical challenging of the knowledge that went before.

By the mid 19<sup>th</sup> century the Humboldtian model had produced many of institutions that still characterise academic work today: the research seminar facilitated by the eminent Professor where apprentice scholars expose their thinking and research to the critique of peers; alongside significant State investment in establishing fully stocked libraries for the exclusive use of students and faculty. As an institution of knowledge production, Watson refers to this approach as 'a process of accumulation, stone by stone' (Watson 2010:233). One outcome, the reproduction of an elite academic class, was not only welcomed but was consciously built. This elite and its reproductive force are evidenced by Bourdieu in his *Homo Academicus* as alive and well in France in the late 20<sup>th</sup> (Bourdieu 1988). The same values underpinned the elite establishments of the American Ivy League, albeit funded through a series of private benefactors, with Harvard established along these same normative guide-rails in 1636, Yale in 1702,

Princeton and Brown 1746, and Columbia 1754<sup>ii</sup>. In fact, there has been a long tradition in the USA of Public Universities funded through taxation as a challenge to the Ivy League Universities. The challenge follows Thomas Jefferson's vision and model of universal higher education exemplified by his founding of the University of Virginia in 1819.

Of course, the contemporary notion of 'responsible' university which celebrates exclusivity, risks tipping over into an 'ivory tower': separated and seemingly uncaring about the needs and problems of neighbourhoods in which the university is physically located. It is this contemporary variant of responsible university exemplified by the Ivy League rankings which ASU fundamentally and directly challenges.

Fast-forward to post-World War II, and the pure pursuit of science and research was at its zenith. By the 1960s, university expansion under new policies of post-war social welfare prevailed, producing exponentially rising student numbers and opening access to lower income students via bursaries. This trend was not isolated but was experienced as a parallel movement in very diverse parts of the globe witnessing convergence across nations as geographically distant as the United Kingdom, Canada and Australia (Miller 1995). The proliferation of ever-more specialist, discipline-based, academic journals demarcated separate branches of scientific knowledge production. As student numbers grew, disciplines were organised and housed according to discipline specialisation in large schools and departments. Externally, the maintenance of the traditional model of responsible university was maintained through a compact agreement with the State which allowed scientists to maintain their autonomy in exchange for making research findings public through authorised academic journals. Scientists organised their own model and measures of quality control: peer review; re-enforcing the insularity and self-referential nature of academic knowledge production. We recognise well this model of scientific autonomy, premised upon the free co-operation of independent scientists, as described by Michael Polanyi in his prescient *Republic of Science* (1962).

I would add, although Rip and Smit do not go this far, that the localised resolution of these competitive tensions between the traditional and the contemporary notions of the Responsible University produces a variety of empirical expressions, involving the local negotiation of priorities and practices, translated into internally differentiated

portfolios of university activities. As we will see in the ASU case, these are instantiated, through the work of particular values-centred academic institutional entrepreneurs, operationalized at the level of sub-units or centres within universities. New inter-disciplinary schools and centres of ‘excellence’ emerge which re-define the notion of excellence. Supported and facilitated by the centre, they manifest new experiments, show-casing new values, organisational forms and altered priorities and daily practice, providing highly localised demonstrations of the contemporary ‘responsible university’.

We can further refer to these experiments as examples of de-facto responsible innovation. Inspired and informed by the 26 cases undertaken as part of the European Union FP7 RES-AGorA project (See <http://res-agera.eu/case-studies/>), we have developed six ‘Narratives’ of de-facto responsible innovation, labelled Narrative A to Narrative F. Within these narratives, the traditional responsible university described above maps to the ideal type of ‘Narrative A’ whilst the experiments in institutional re-design which the ASU case exemplifies, negotiate and combine elements of Narrative B to Narrative F, indeed are epitomised by Narrative F (Randles et al 2016).

***Narrative F, by contrast to Narrative A, represents the institutionalisation of responsibility as a new social contract between research and innovation actors and society, representing a 360° turn from Narrative A, with a focus on research and innovation processes and outcomes designed with and for society, re-defining the normative base of responsibility.*** Narrative F manifests most clearly through the organisation of research in inter-disciplinary centres and schools which are societal challenge or solution-focussed, rather than discipline focussed, and where engagement with societal actors in order to negotiate and co-construct the research agenda, from the opening stages of formulating research questions, to engaging on the implications of findings and results, becomes the new normative orientation of the Responsible University.

**Table 1 . Six Grand Narratives of De-facto Responsible Innovation (Randles et al 2016)**

<b><i>Narrative A</i></b>	<b><i>Republic of Science</i></b>
<b><i>Narrative B</i></b>	<b><i>Technological Progress: Weighing Risks and Harms as well as Benefits of New and Emerging Technologies</i></b>

<b>Narrative C</b>	<b>Participation Society</b>
<b>Narrative D</b>	<b>The Citizen Firm</b>
<b>Narrative E</b>	<b>Moral Globalisation</b>
<b>Narrative F</b>	<b>Research and Innovation With/for Society</b>

## 2.0 The case of Arizona State University.

A good university is an institution which understands its role as one of the most powerful adaptive forces to society. Its role is not the maintenance of Western culture... (but) the preparation for our next generation as to be adaptive as they can be to all things that they encounter .... To me, the role, or the purpose, or the objective of the public university is to be powerfully transformative to the success of society.... That we are willing to accept responsibility for economic, social and cultural vitality and the health and well-being of the community. Well if all our social scientists, and our business specialists, and our scientists, and our doctors, and our teachers, and our teacher trainers can't produce that, and if that's not the outcome, then why do we even exist?

(Michael Crow, President of ASU, interviewed by Randles, October 2013).

In this section, ***the ASU case of the 'Responsible University' is reviewed***. This section ***pays less attention to the 'the what and why' of institutional change (which is the focus of Section 1 above), but importantly how institutional transformation has been realised in the ASU case. To achieve this, the case is interpreted through the four cornerstones of the Normative Business Model (NBM) (Randles and Laasch 2016) comprising i) The normative orientations and values driving institutional change ii) (De)institutionalisation of the incumbent model iii) The role of institutional entrepreneurs especially the university leadership in organisational transformation and iv) the governance and financial mechanisms underpinning the change .***

The case is based on more than 20 interviews conducted between 2013 and 2015, including two interviews with Michael Crow, with the ASU Senior Leadership team, with the Heads of University-wide inter-disciplinary institutes (the Biodesign Institute and the (new in 2013) School of Sustainability in 2013 and the Head of the (new in 2015) School for the Future of Innovation in Society; the Heads of three contrasting

Research Centres : the QESST centre of Solar Engineering and a group of early career graduate and post-doc QESST researchers; the Centre for Research on Organisation Research and Design (CORD) and the Consortium for Science, Policy & Outcomes (CSPO). Horizontally, the interviews had a focus on three areas of research : nanotechnology, synthetic biology and solar technologies. Together, the interviews probed understandings the ‘Good’ university and asked what constitutes action, practice and operationalization of responsibility in Universities, both informing and testing the development of the six Narratives framework discussed in Section 1.

## 2.1 The normative orientations and values driving institutional change

Over the last fourteen years, under the leadership of Michael Crow who took the post of President in 2002, Arizona State University (ASU) has intentionally and systematically embarked upon a journey of sustained institutional change. The case provides a practical demonstration of the embedding of a set of society-facing values into an organisational prototype, referred to by Crow as the ‘New American University’ (NAU). However, as Crow argues, institutional transformation in the University context cannot be considered a staged process with a definable end-point. He considers the changes at ASU to be a permanently evolving, adaptive project. Indeed as an experiment in institutional innovation Crow emphasises that ASU sits within a landscape of highly differentiated universities and he has cautioned more vehemently against taking ASU (or its stylised representation, the NAU) as a template for top-down replication, as this risks in his words convergence towards a new form of creativity-stifling isomorphism (Crow and Dabars 2015).

Crow’s NAU is premised on the three operationalized pillars of ‘excellence, access and impact’ (Crow and Dabars 2015). This concerns a fundamental re-formulation of the meaning of research excellence. From the isomorphic dominant model, reproduced over time and copied across the landscape of traditional universities, what Crow calls the ‘clonal replicants’ or ‘sled-dog’ model, (Parr 2014), (which corresponds closely with the Responsible University of Narrative A above); Crow re-defines excellence in research as that which is responsive, relevant and impactful in addressing societal problems and challenges. However, according to Crow ASU provides one particular expression of a university’s public role in society, translated into a set of top-down design principles, but matched by an intentionally wide scope

for bottom-up creativity and entrepreneurship from faculty, research centres and institutes, non-academic staff, and the student body.

Very recently, ASU has translated its fundamental normative values into a Charter, codifying its mission and goals for 2015 and beyond. The overarching mission states:

“ASU is a comprehensive public research university, measured not by whom we exclude, but rather by whom we include and how they succeed: advancing research and discovery of public value: and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves”

<https://live-newamericanuniversity.ws.asu.edu/about/design-aspirations>, accessed June 2016

Providing direction and elaboration to the mission statement, Crow and his senior colleagues formulated eight ‘design aspirations’ through which guides the strategic operationalisation of the normative vision:

Table 2 – ASU’s eight ‘design aspirations’

1. Leverage our Place	ASU embraces its culture, socio-economic and physical setting
2. Enables Student Success	ASU is committed to the success of every unique student
3. Transform Society	ASU catalyses social change by being connected to social needs
4. Fuse Intellectual Disciplines	ASU creates knowledge by transcending academic disciplines
5. Value Entrepreneurship	ASU uses its knowledge and encourages innovation
6. Be Socially Embedded	ASU connects with communities through mutually beneficial partnerships
7. Conducts Use-inspired Research	ASU research has purpose and impact
8. Engage Society	ASU engages with people and issues locally, nationally, and globally

## 2.2 (De)institutionalisation of the incumbent model

Taking the three pillars of access, research excellence, and impact which are elaborated in the eight design aspirations, there is a wealth of evidence that ASU has transformed itself, thereby (de)institutionalising the incumbent traditional Narrative A responsible university model.

First, in terms of over-turning exclusivity of access which defines Narrative A into the inclusive access model characteristic of Narrative F, the composition and size of the ASU student body has transformed. Student enrolments at ASU rose 26% from 61,000 in 2005 to nearly 77,000 in 2014 (ASU Annual Report 2014). Furthermore, 35% of the undergraduate community are from non-white ethnic background, with a large proportion of Hispanic students providing evidence of success of the inclusivity and diversity strategy (ASU Annual Report 2012).

From the direction of research excellence, this is understood quite specifically under the Crow regime as the re-orientation of research, from a focus on single, traditional disciplines and traditional single principle investigators (PIs) working exclusively with their own (small) team of researchers, to outward facing societally engaged multi-disciplinary (collaborative multi-PI teams), able to demonstrate societal relevance through specific measures of impact on societal problems. This involved the wholesale re-design of the organisation, involving the creation of outward-facing multi-disciplinary centres and institutes oriented to addressing identified societal challenges and problems. The process was far from pain free. In the process of restructuring, 69 academic units, schools and departments were disbanded, including sociology, philosophy, and anthropology. They are replaced by 25 new multi-disciplinary schools and centres with non-traditional names such as the School of Human Evolution and Social Change.

Below Crow describes the simultaneous creative-destruction process which ensued, in particular in re-organising the institution away from single-discipline 'silos' and towards a range of multi-disciplinary, out-facing centres, addressing a wide scope of societal problems.

I think what we focused on was whether or not people, faculty in particular ...were willing to accept just randomly transferred social constructs called disciplines, and whether or not they were satisfied with the fact that they were, basically, intellectual slaves to a construct that they didn't design. We tried to create an opportunity for those who were interested in rethinking... their



intellectual construct...(for example) our new School for Human Evolution and Social Change, which now has taken anthropologists, and sociologists, and epidemiologists, and a range of other social, behavioral, and life sciences—scientists and brought these people together. ... Why not construct what it is that you think is really a fascinating intellectual, pedagogical, methodological approach?

(Michael Crow, Interviewed by Randles, October 2013)

Another target for Crow's (de)institutionalisation process was the bureaucracy plays in conserving the old and resisting the introduction of the new.

Academic departments had literally become bureaucratic structures.... departments had all become conservers.... They'd become focused on protecting their turf, protecting their space, arguing against others, fighting against others, and we just tried to systematically go from conserver model to zealots. Zealots for knowledge creation, zealots for knowledge transfer, unconstrained, unencumbered, or, at least, allowing that to occur.

(Michael Crow, Interviewed by Randles, October 2013)

The strategy has brought dividends in terms of increase in research revenues. In a climate of reducing Federal funding of University research, ASU research grants and contracts income increased by 12% between 2005 and 2014, from \$111m to \$244m.

However, in the process 1,800 people lost their jobs. This is (de)institutionalisation in action, as a very painful process. The argument would be that for transformative accelerated institutional change to occur at all levels the organisational, institutional and cultural restructuring which was needed to fulfil the desired shift to the contemporary 'Responsible University' was radical and pervasive. It controversially included losing staff and faculty who were not comfortable with the new model, and recruiting new faculty who were.

### 2.3 Institutional entrepreneurialism and organisational transformation

Institutional entrepreneurialism is shown at ASU to be encultured, critical, reflexive, and collective; and articulated at multiple levels within the organisation. Crow plays a crucial role in illuminating a normative vision for the organisation. However, he is not alone as an ASU visionary of strategic change. Other members of the ASU senior

management team have been key actors in ASU's transformation. The now Senior Vice President of Knowledge and Enterprise Development Sethuraman 'Panch' Panchanathan, was already at ASU when President Crow arrived in 2002. 'Panch' had an existing track-record of leading interdisciplinary research, conducted in collaboration with professionals and lay publics from the local community. Panch was promoted under the Crow regime, so raising and amplifying his role and the normative qualities he also brought to the transformation project. This shows the seeds of the Crow vision to have already been present before Crow arrived, though it was crystallised and promoted under Crow.

'I mean entrepreneurship in all ways. In research, all of our leaders are also doers. By the authority of institution, entrepreneurship infuses everything we do... I believe every student to be entrepreneurially minded – how are you creative/innovative? – how do you solve problems/risk? .... Entrepreneurialness is an inherent and important characteristic that we want to develop across the university. How to promote this? How to put it into the fabric and make it available to all?... Some of these things are about culture they are not done in one course or school but embedded in the culture of the University' (Senior VP Knowledge Enterprise Development, Interviewed by Randles, November 2013).

As well as mobilising a range of actor constituencies to participate in the programme of structural change; the changes became performative. That is, the vision became adapted and translated it into forms which could be meaningfully embedded into local research centres and schools. An important actor in this process of local embedding is the Ambidextrous PI<sup>iii</sup>.

The ASU study finds that the Ambidextrous Principal Investigator (PI), located at the mid-level of the organisation undertakes bottom-up entrepreneurial responses, and acts as an important boundary-crossing agent, linking like-minded peers horizontally within the university, enabling the scale-up of projects compatible with the interdisciplinary normative vision. However not all faculty PIs share the motivations or capabilities of the Ambidextrous PI. The PI is therefore found to be a differentiated actor. Some maintain legacy characteristics the traditional Responsible University,

whilst others illustrate a set of characteristics, motivations and capabilities that define and differentiate the Ambidextrous PI.

With new characteristics over and above those of the traditional academic, the Ambidextrous PI exhibits a capability to work across discipline boundaries including, crucially, across social and engineering sciences. This is a critical capability for addressing societal challenges, albeit facilitated by the organisational structures and incentives provided by the centre of the organisation via cross-university interdisciplinary institutes such as GIS. Finally, in terms of the social reproduction of both the values and capabilities of the Ambidextrous PI, this is achieved by mentoring the next generation of researchers and academics through teaching, supervision, and peer support. One Ambidextrous PI combined entrepreneurial grant-raising and boundary-crossing capabilities, with the expression of a strong personal commitment to the ASU inclusiveness strategy and values, believing it both desirable and possible to take a young person from any background and give them the input in terms of teaching and opportunities/access to inspire them to take a role in the world, whatever they chose to do.

The combining of entrepreneurial with traditional academic capabilities in the form of the Ambidextrous PI, is not unique to ASU and was also found in a study of new models of academic leadership at University of Twente, in the Netherlands (Kokkeler 2014). However the connecting of these capabilities to a particular set of normative orientations, and their translation into the priorities and practices of local research centres by the Ambidextrous PI was not elaborated in Kokkeler's study. Indeed, the Ambidextrous PI appears to be an institutionalised phenomenon at ASU, representing a new form of agenced mid-level actor, both formed and supported by the governance regime and culture of institutional entrepreneurialism set at the top of the University.

#### 2.4 The governance and financial mechanisms underpinning the change

By governance mechanisms I mean all instruments and management and performance systems which co-ordinate, steer and evaluate organisational practice towards normative goals, such as strategy and business plans, Codes of Conduct, standards and accreditation regimes, and financial and other incentives. The term

agencement captures the compound nature of the concept of person+technical device, showing how actors become transformed ; acting in a way that would be predicted by the system of devices they operate such that practice comes to correspond to the features predicted by device (Callon et al 2007). Importantly, as new actors become enrolled, sense-making becomes adaptive, ie new constituencies of actors 'translate' the understanding of the material device into their own context. Devices then operate as boundary objects, enrolling new actors and providing the 'glue' that enables both the expansion and the stabilisation of norms as part of institutionalisation processes, becoming part of the de-facto normative underpinning.

One example of a governance innovation at ASU is a resource allocation initiative managed at the ASU 'centre' which regularly calls for proposals for new multi-disciplinary research centres. Proposals are assessed by an internal academic panel, resulting in successful centres being established with a limited 5 year life, to be evaluated after that time either for continuation, modification, or phase-out. The aim is to motivate faculty to self-organise into inter-disciplinary teams, to propose a research centre or initiative with a five-year research programme, which would produce a measurable impact on a specific societal problem or issue, whilst the 5 year performance review ensures that centres do not become ossified or their existence is not taken for granted as a new enclave of empire-building.

Finally a critical element in the governance of a values-driven organisation, is an ability to secure financial and other resources which not only support, but also facilitate the growth of the model. I would call this the organisation's 'business model' regardless of the type of organisation, be it a business, charity, or public chartered organisation such as the public university. At ASU a critical instrument of organisational growth has been precisely the attention to widening the student base through access and inclusivity. This has provided an income stream which has underpinned the financial basis of university expansion. In 2014, student tuition fees provided \$897m, or 46% of the total revenues of the University, a 196% increase on 2005 when the income from student tuition and fees was \$302m (ASU Annual Report 2014). We see here the material success of the normative aspiration of inclusivity, at the same time provides the cash to enable the reproduction and expansion of the Normative Business Model in financial terms. Of this, Financial Aid Grants for disadvantaged student groups contributed \$107m in 2014 nearly trebling the 2005 figure of \$37m again

demonstrating again the coupling of normative ambition with growth in financial resources in order to achieve the public-good objectives of the contemporary Responsible University.

### 3.0 Implications of the Case for the Local-Global Responsible University

ASU is only one expression of the university's interpretation of its public role and responsibility to society, translated into a set of top-down design principles, but matched by bottom-up creativity and entrepreneurship from faculty, non-academic staff, and the student body. Although ASU stands as a critical alternative - a counterpoint - to the isomorphic traditional enclaves of exclusivity and privilege exemplified by Narrative A, against which ASU represents a normative antithesis along just about every criterion; the more nuanced message to peer universities provided by Crow and Dabars is to caution against taking the ASU model as a template for replication. Rather, the authors return to the theme of a differentiated landscape of higher education institutions, advocating variety, and calling upon universities to innovate their own organisational structures, programmes, and activity-sets, according to their own interpretation of the pressing needs of society, and specific local contexts (Crow and Dabars 2015).

ASU can be differentiated from other universities by the extent to which it orientates to inter-disciplinary, solution-driven research, tackling areas of strategic importance including global challenges around sustainability, health and well-being, the natural environment, energy and natural resources, life and health sciences, and the role and impact of new technologies such as ICT on society. The interpretation of the Responsible University under this definition is one which mobilises its resources and effort to be responsive and relevant to societal needs, and to address pressing societal problems and challenges. In Samarasekera's words, solution-driven research (Samarasekera, 2009).

***As for the route to global extension of the contemporary Responsible University, we can imagine scale-up arising from the formation of strategic international collaborations involving the sharing of some, if not all, of the portfolio of attributes of the Responsible University exemplified by the ASU case.*** Such strategic alliances are likely to be values/performance driven rather than

publication/rankings driven. Family resemblances across the normative orientations of Universities/centres of excellence are likely to stimulate coalitions of the willing. Strategic international partnerships across a variety of existing and in-the-making formulations of the contemporary Responsible University can be imagined, corresponding to the NAU, or other family resemblances such as 'Civic' University in the UK (Goddard 2009). Indeed, such strategic partnership has already been struck between ASU, Kings College London, and Australia's University of New South Wales forming the PLuS Alliance (Bothwell, THE February 2016: 11). ***Under this scenario, universities with sufficiently convergent normative values orientations and activity portfolios will enter into international strategic alliances, gradually deepening the relationship across common interests in societal problem/solution-focussed research, and teaching and pedagogy for societal engagement including blended learning combining face-to-face and online methods. The outcome would be rising international visibility, legitimacy, and resource-attraction for networks of excellence comprising competent like-minded universities.*** Such a strategy would attract increasing numbers of international students and faculty drawn to the model, motivated to contribute to the realisation of these public values, and to building new competences to achieve them. The scope for measurable continual performance improvement along these parameters, coupled with shared motivations to co-construct solutions with/for and in the service of society (adapted to place), would form the basis of a new social contract between universities and society combining local entrepreneurialism with global strategic alliances.

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<sup>iii</sup> The Ambidextrous organisation, as one which successfully managed the dual process of exploration and exploitation of innovation, was coined by O'Reilly et al 2004. For a review see O'Reilly et al 2013. It was later applied to the capabilities of individuals and leaders of innovative organisations for example in Tushman et al 2011, Rosing et al 2011.