

# **Virtuous or Vicious Cycle? Inscribing Diverse Professional Values in Lecture Capture Systems**

*Full paper*

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## **Abstract**

This paper examines how the introduction and use of a new information system affects and is affected by the values of a diverse professional workforce. It uses the example of lecture capture systems in a university. Its contribution is to combine two concepts taken from actor-network theory, namely accumulation and inscription, and combine them with an integrated framework of diversity management. A model is developed of accumulation cycles in lecture capture usage, involving multiple interacting actants, including the broader environment, management commitment to diversity, work group characteristics, individual practices and the affordances of technology. Using this model, alternative future inscriptions can be identified – an optimal one, which enhances professional values, as a result of a virtuous accumulation cycle, or a sub-optimal one, as a result of a vicious cycle. It identifies diversity management as an important influence on how professional values are enhanced, modified or destroyed.

## **Keywords (Required)**

Diversity Management, Professional Values, Actor Network Theory, Inscription

## **Introduction**

This paper examines the way in which the introduction and use of a new information system affects and is affected by the values of a diverse professional workforce. It uses the example of lecture capture systems in a UK university, to explore how actor network theory, applied within a framework of diversity management, can shed light on the dynamics at play. There are several interesting dimensions to the example. Firstly, lecture capture systems are primarily designed to record live lectures, and hence affect a major component of academic practice. Secondly, academics belong to a profession, with a core set of values – beliefs about what is important, and about appropriate procedures and ethics (Gibbons 2004). Thirdly, they are part of a professionally diverse workforce – they work with other professionals - managers, administrators and technical staff, each with their own, sometimes contradictory, goals and values (Jarzabkowski 2005). Fourthly, over the past fifty years there have been substantial social and economic changes, on an international scale, to the university sector. An emphasis on quality and academic freedom in the 1970s gave way to a more managerialist perspective in the 1990s, and to increased international competition and marketization in the 21<sup>st</sup> century. This not only changed academic roles and values, it also changed the balance within the diverse teams in which they operate. (Apple 2003; Higson and Miller 1997; Jongbloed 2003; Miller and Higson 1999, 1996; Molesworth et al 2009; Parker et al 1995; Raciti 2010) Fourthly, technology is increasingly complex and pervasive. Both students and staff now operate within their own information ecosystem, of which the systems available from within universities is a relatively small part (Finger et al 2010).

The contribution of this paper is to combine two concepts taken from actor-network theory, namely accumulation and inscription, with an integrated model of diversity management (Guillaume et al 2014). Inscription describes the way in which a particular form of a technology becomes universally used, via cycles of accumulation (Cecez-Kecmanovic 2014, Latour 1987, 2005). The paper explores the following questions:-

- How do the diverse roles and values of professionals at a university affect, and how are they affected by, the process of implementing lecture capture?
- How does the rapidly changing social and economic context of universities influence this process?

There has been a stream of recent work which takes a sociomaterial view of information systems – in other words, assumes that they cannot be understood separately from the human beings that use them. Actor Network theory is one of several schools of thought which help shape this view (Cecez-Kecmanovic et al 2014; Latour 1987, 2005). The case under consideration has already undergone the early stages of accumulation – lecture capture has been used by individual academics for some years – and some early inscriptions already exist. The university is now implementing lecture capture more extensively, and there is hence the opportunity to examine the current cycle of accumulation. This cycle of accumulation takes place within a context of massive socioeconomic and technological change affecting the sector, and changing roles and values within diverse teams. The diversity management framework (Guillaume et al 2014) supports a comprehensive, integrated approach to the analysis of this context.

The paper proceeds as follows. Background is given on the nature of professional roles and values in general, and for academics and administrators in universities in particular. The theoretical approach is described. This includes a brief outline of Actor Network Theory, with a focus on the concepts of accumulation and inscription, and the diversity management framework, as incorporated into Actor Network theory. An overview of the case study, data collection and analysis is given, and results are then discussed with particular focus on cycles of accumulation where lecture capture affects and is affected by professional values.

## **Background**

### ***Professional values, diversity and technology***

Professions arise when organized groups possess esoteric knowledge of value to society, focused on a specific area, such as medicine, law, accounting (Pratt et al 2006) or higher education (Jarzabkowski 2005). Professionals define their role in terms of services they offer within a core set of values. These values and roles are fluid, however. They evolve with changing environments, new technologies and novel approaches to work, and are strongly influenced by informal networks (Gibbons 2004). Professionals modify their understanding of their role in a series of learning cycles which are the resolution of mismatches between how they see themselves and what they find in the workplace (Pratt et al 2006).

Professionals usually work within organizations which include other roles, including managers, administrators and technical staff. These roles can have potentially contradictory aims. For example, in universities, the academic workforce pursues specific goals and interests related to research, teaching and learning. Reconciling these goals with managers who have direct responsibility for responding to competitive and financial pressures can cause tensions and contradictions (Jarzabkowski 2005). Resolving such contradictions can require a nuanced approach (Miller and Higson 1999). Several difficulties in implementing technologies arise where managers fail to engage with and respect professional values (Doolin 2004).

### ***The university sector and technology***

In the past fifty years, universities in many countries have seen radical changes to student enrolments and sources of funding. Student enrolments have increased substantially, government funding has been cut, with students being charged fees to cover costs which were previously publicly funded in many countries including the United States, the UK and Australia. Higher education has been globalized, and, indeed, is an important export industry for those three countries and at least another twelve (Derby et al 2015; Raciti 2010; Smith et al 2009).

As a consequence, universities are increasingly exposed to market forces (Jarzabkowski 2005). They have also, increasingly, been seen as focused on producing employable students (Australian Government 2009; Browne 2010). This has led to radical changes in the way in which the role of academics is conceptualized by different parties. In the USA, universities “not so long ago” were seen as havens for rumination, and academics as mediums for expressing a range of views, with considerable academic freedom to choose the materials taught and the means of assessment (Stein et al 2013). In the UK, similarly, the aim of universities was “once aimed at changing a student’s intellectual perspective of the world” (Molesworth et al 2009); the rhetoric was primarily of quality and academic freedom (Miller and Higson 1996). A more “managerialist” perspective, focusing on cost effectiveness and efficiency appeared in the 1990s in several countries including the USA, the UK, Netherlands and Australia and this was followed by current trends in marketization, where increased commercial pressures have led to discussions regarding students as consumer (Apple 2003; Higson and Miller 1997; Jongbloed 2003; Miller and Higson 1999, 1996; Molesworth et al 2009; Parker et al 1995; Raciti 2010). This trend is evidenced by the publishing of student rankings on universities, in national newspapers and on government web sites – see for example HEFCE (2016).

These changes impact, and are impacted by, technology. Government funding is increasingly linked to highly detailed statistics such as enrolments, completion rates, and staff student ratios (Department of Education, Australia 2014; HEFCE 2016), and universities therefore need complex highly integrated administrative systems, and appropriate reporting systems to provide this information. These systems also need to service the increasingly complex administrative needs of students themselves. In addition, students expect learning delivery to mesh with the broader information ecosystem in which they operate (Finger et al 2010).

## **Theoretical approach**

### ***Actor Network Theory and Inscription***

Actor network theory provides a specific framework for understanding the interaction between human beings and technology. (Cecez-Kecmanovic et al 2014; Latour 1987, 2005). It includes both human and non-human actors, both termed “actants”. One aspect of this theory is the notion of a cycle of accumulation, which explains how specific arrangements of actants within networks result in a specific instantiation of technology, or inscription. Over time, further cycles of accumulation result in stronger and stronger inscriptions. Latour (1987) illustrates these concepts with the example of early French geographers producing maps of China. The first maps provided relatively weak inscriptions – knowledge was inaccurate and incomplete, conventions for map reading were not established, and the maps were influenced by power relations between the French and the Chinese. Several cycles of accumulation each used earlier maps, and influenced, and were influenced by, the specific socioeconomic conditions of the time. This resulted in earlier maps becoming “black boxes” in stronger and stronger inscriptions. In the current paper, the concepts of cycles of accumulation and inscription are used to describe lecture capture in a specific socioeconomic and organizational context. In order to understand cycles of accumulation, an integrative model was used, as described in the following section.

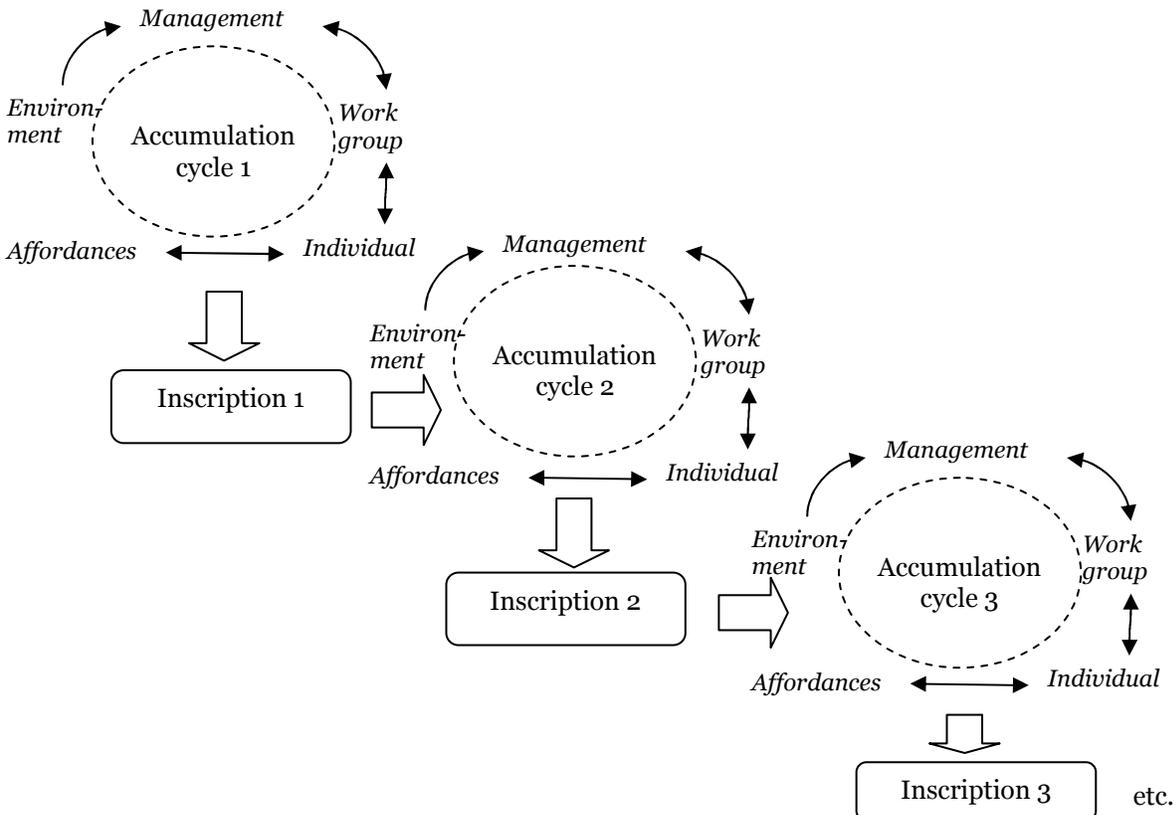
### ***The Integrative Model of Diversity Management***

The integrative model of diversity management was developed from a review of literature in two domains: Work and Organizational Psychology, and Human Resource Management (Guillaume et al 2014). It focusses on work motivation, and defines diversity as being engendered from “an almost infinite number of individual attributes” (p. 785). It is therefore appropriate for a study of teams with potentially diverse professional values. There are several elements to this model that are relevant to the current study. The current paper expands two elements of this model, adds a third, to reflect the sociomaterial approach, and the focus on values within the profession, and modifies a fourth, to reflect the phenomenon being studied. These changes are reflected in italics below.

- **Environment:** The legal, socioeconomic, cultural *and technological* environment
- **Management and leadership:** The beliefs of top management regarding diversity, the specific diversity policies and procedures within the organization, and the activities of those leaders responsible for this particular project
- **Work group:** Levels of diversity within the work group. The work group climate for inclusion of diverse points of view. The work group composition, with a focus on levels of diversity. The extent to which members of the work group identify with it, and are motivated by it.
- **Individuals:** The concerns of individuals regarding their *professional identity and values*, their acceptance of performance standards, and their belief in their ability to do their job. Their innovation, effectiveness and well-being *regarding lecture capture practices*
- **Affordances of technology:** *an action potential (Majchrzak and Markus 2012): what people perceive lecture capture technology can do (Ciborra 2002; Majchrzak and Markus 2012); a relational concept: interactions between people and technology (Majchrzak and Markus 2012)*

### Using the Diversity Management Model in an Actor Network Framework

In this paper, the diversity management model is used to examine the complex sociotechnical interactions that take place in each accumulation cycle. This is illustrated in Figure 1. In keeping with actor network theory, all the elements of the diversity model are part of a network, and influence each other. The environment affects the way in which managers lead the organization as a whole and specific projects within it. Their beliefs in diversity moderate the way in which they react to that environment. Senior managers interact with work groups, and influence and are influenced by the levels of diversity and climate for inclusion within those work groups. The way in which new technology is introduced is influenced by the activities of leaders with specific responsibility for the project. The technology's affordances – what people perceive the technology can do – affect and are affected by individuals' professional identity and values, their ability to innovate, their effectiveness and their well-being.



**Figure 1: A combined diversity management/actor network representation of cycles of accumulation**

## **The case study**

The research is exploratory, so a case study approach was taken (Yin 2003). The source of data is a relatively new university, based in the UK. The newness of the university means that it is heavily exposed to market forces, unlike more established universities with long-standing reputations and significant endowments. The fact that the university focuses on research as well as teaching means that it attracts an academic workforce with a strong focus on the values embedded in conducting research, and reflecting that research in teaching. This university has been the subject of three rounds of research by the authors, (Miller and Higson 1999, Leonard and Higson 2014). In the most recent round, semi-structured interviews were conducted with academics, senior executives, administrators and students regarding a specific project: the introduction of lecture capture (recording) as part of university practices. Each interview was conducted by two of the co-authors, and lasted approximately one hour. Results were coded using iterative coding (Miles et al 2014). In the first iteration, specific accumulation cycles were identified. In the second iteration, these cycles were analyzed using an integrative diversity management framework (Guillaume et al 2014). In the third iteration, interviewees' views regarding the nature of their role and professional values were captured. The fourth iteration identified the ways in which interviewees felt their roles and values were affecting, and being affected by, lecture capture. The fifth iteration identified interviewees' predictions for the future.

## **Results**

### ***Cycles of Accumulation and the Diversity Management Framework***

Two cycles of accumulation were identified. The first was the early use of lecture capture by individual lecturers. The second cycle saw more extensive use, albeit still under lecturers' control. In addition, a third, future cycle of accumulation was identified which could be suboptimal or optimal, depending on the evolution of circumstances and activities. Table 1 summarizes these accumulation cycles using the integrative diversity model (Guillaume et al 2014) as a framework. Accumulation cycle 1 occurred against a background of reduced grants from government, tied to increasingly complex data regarding student enrolments, an increase in the cap on student fees, and the introduction of a public website which included student's opinions regarding the courses they had studied (Browne 2010; HEFCE 2011). Students operated within a sophisticated information ecosystem, into which the university provided a portal to both the learning management system and the student administrative system [Team Leader, Information Systems]. By the time of accumulation cycle 2, the competitive environment had become more intense, and several academic interviewees expressed concern regarding marketization of the higher education sector, and the concept of a student as a customer. Students' information ecosystems had become more extensive – the university now calculated WiFi requirements on the assumption that every student had three electronic devices on them at any one time [Senior Executive, Information Services].

The university has a long tradition of subtle and positive diversity management of the relationship between academics and administrators, which was in place by the 1990s (Miller and Higson 1999). By 2015, however, some concerns were being expressed that the external pressures were resulting in a somewhat more top down management style: "I've only just started talking us and them" [Academic]. A new senior executive was implementing 40% cuts to administrative staff at the time of the interviews. There was some discussion regarding the extent to which this top down style was affecting lecture capture.

In keeping with the principles of diversity management for different roles, there was strong mutual respect between administrators and academics. Indeed, administrators saw this as a key aspect of their role: they offered a specific skill set, including attention to detail and a knowledge of the administrative rules, and worked to the principle that: "Administrative processes shouldn't drive academic practice" [Administrator 1]. The proposed cuts were seen as threatening that principle: "what they [were] proposing to the changes in structure, meant that academic practices would have to change, because there weren't going to be enough administrative people to do it" [Administrator 1]. "We are able to manage with high student staff ratios. We put that down to the strength of our administration" [Academic 5]. Both academics and administrators prided themselves on relationship management with each other: "I think I'm quite good at setting up and maintaining good working relationships" [Administrator 1]. Union

leaflets which opposed the cuts also reflected the good terms in which relationships were seen, using the slogan: “[University] has a reputation as a great place to work. Please don’t demolish that.”

Academics had identified several technical affordances, not all of them necessarily intended by the designers. It was noticeable that the affordances were narrowing. For example, in Accumulation 1, some academics used recordings as a primary delivery method, supplemented by other class activities. Senior management’s view of technical affordances was at this point undefined – they encouraged any innovation. By Accumulation 2, the main usage was the recording of live lectures as a standard practice. Senior managements’ view of technical affordances allowed less room for maneuver: “The University sees the value in some form of recording [and has an] expectation that staff will use this when appropriate.” [Senior Executive]. Academics, in theory, wanted to edit recordings, but in practice did not have time. There was a concern regarding a future affordance (Accumulation 3) over which academics had little control – that of release of recordings to broader media (e.g. Facebook).

	<b>Accumulation 1 (2011-2014)</b>	<b>Accumulation 2 (2015)</b>	<b>Accumulation for optimal inscription 3</b>	<b>Accumulation for suboptimal inscription 3</b>
<b>Economic, social and technical environment</b>				
Environment	Reduced grants, increased student fees, global market Sophisticated student information ecosystem.	Increased sophistication of student information ecosystem. Increased emphasis on student surveys.	More nuanced debate on the future of higher education. Market pressure eased	Market pressure increases workloads Increased emphasis on student surveys: student as consumer.
<b>Management and leadership</b>				
Top management diversity beliefs.	Long tradition of inclusiveness, and focus on managing diversity	Tradition remains, some evidence of more top down style. Staff cuts	Inclusiveness enhanced. Support given to diverse teams innovate	Top down management style prevails. Little time to innovate
Project leader activities	Encouraging pockets of innovation	Encouraging and monitoring to broaden use	Encouraging innovation and a spirit of debate.	Enforcing standardization and common practices
<b>Work group features</b>				
Work group inclusion	Mutual respect for diverse professional roles and values.	Cuts increase sense of inclusion, bring concerns	Mutual respect continues.	Academics isolated from decisions
The work group composition	Academics, administrators, senior execs, technicians	Academics, administrators, senior execs, technicians	Mixed work group composition continues	Greater division between roles
Work group identification, motivation	Identification with a functioning diverse work group	Some evidence of “us and them”	Identification with work group continues	“Us and them” mentality prevails.
<b>Affordances of technology for lecture capture</b>				
Affordances of technology	Individualized, – e.g. primary delivery method	Standardized live lecture recording – some innovative use	Continued exploration of affordances	Privacy issues: e.g. lectures released on social media
<b>Individual issues</b>				
Individual identity, values, ability	Lecture capture was tied to innovation and excellence	Concerns lecture capture negative for academic values	Innovation enhances academic values	Time, conformity pressures prevent innovation
Lecture capture practices	Individual lecturers, using specific teaching models e.g. flipped classroom.	Broader use: mostly recording live lectures, some using teaching models	Innovation: new models of learning which include lecture capture where appropriate	All live lectures recorded despite misgivings regarding the effect on values.

**Table 1. Cycles of accumulation and the integrative diversity model (Guillaume et al 2014)**

## **Lecture Capture and Changes to Values**

Table 2 summarizes the academic values identified, and the possible positive or negative effect of lecture capture on each value. A key academic value was being able to **challenge students**, and there was considerable concern that the current socio-economic environment was making this difficult. “There has been a Taylorization of academia... a dumbing down, [with students being given] predigested nuggets that they can regurgitate and get their First” [Academic 2]. Students increasingly see themselves as consumers [Academic 1] “There is increased marketization now that students pay” [Academic 5]. Reduced government grants were also having an effect: “we are under great pressure for resources” [Academic 5], and that lecture capture could potentially exacerbate the problem: There were concerns regarding the way in which academics’ ability to challenge students was being eroded: “at what point are you asking the student to pay attention?” [Academic 2]. Students were assuming that lecture recordings were theirs by right: “as strong as that”, and that they could dictate terms - there have been examples where students have complained that the lecturer said something that was not on the slide. [Academic 1]. This was problematic: “just because they like it, doesn’t mean it’s good for them” [Academic 3].

Related to this was the effect of lecture capture on student attendance, and the consequent involvement of students in discussion. Students who did attend had less chance for discussion with other students, and yet were contributing to recordings which could be used by non-attending students. [Academic 2]. The student view reiterated this: “Recording lectures is good but you have to motivate students to come. You don’t get as much out of lectures when less people participate”. There was a dangerous “illusion that a recording of a lecture is equivalent to the lecture...I believe in interactions between the academic and student [that should be] face to face” [Academic 2]. Estimates on the effect on attendance varied: some interviewees thought it had a large effect, some thought it was not critical.

A second key value was **to provide a safe space for discussion** “A University should be a repository for views that are not acceptable today because they are old fashioned, avant garde, radical...a sacred space for challenging and interesting views” [Academic 2]. “A classroom should be a safe space to discuss things” [Academic 6]. There are times when the Chatham House rule would be appropriate (where participants can use information they receive at a meeting but cannot reveal the identity or affiliation of the speaker (Chatham House 1972, 1992, 2002)). [Academic 1]. Here, again, lecture capture was seen as a potential threat, resulting in staff and student “self-censorship”. “You are not going to be as controversial, dynamic, rude if there is a recording” [Academic 2]. “It could make students reluctant to say what’s on their minds. I personally don’t think about it” [Student]. Interviewees’ practices evolved as they reflected on their previous use of technology, and this was particularly evident in the area of safe spaces for discussion: “I do record my lectures because I have to, but this year I’m having a different approach. Part will not be recorded – the participation in class activity” [Academic 5]. “I am going to do things differently. I am going to switch off recordings in order to have...discussions” [Academic 4]

A third value was **to ensure effective student learning of specific skills and knowledge**. This varied according to subject area. There were some areas where the main role of an academic was to impart information. This was particularly the case where subjects were relatively slow-moving, and there was a requirement for students to absorb a body of knowledge. Examples included statistics [Academic 2], fluid dynamics [Academic 6], and “mathematical modules such as Finance and Accounting” [Student]. In these cases, a safe space for discussion was not required, and lecture capture was seen as enhancing opportunities. There was, however, concern regarding the quality of a lectures recorded live, rather than in a professionally produced studio recording [Academics 3, 4, 5]. Several staff commented that they did not have time to edit the lectures they captured, even though they could do so in principle.

Fourthly, lecturers recognized their commitment to **equity and inclusivity** for particular students, including those with English as a Second Language, and dyslexic students [Senior Executive Academic]. This issue “needs to be addressed through materials students can study at their own pace, where they are clear what they have to do” [Academic 5]. Lecture capture was seen as playing a positive role in this area, although it was noted that lecture capture is sometimes used as a way of mitigating bad lecture practice, such as speaking too fast [Academic 5]. It was also used as part of cost-cutting exercises – there was no longer money available to pay for note-takers to help students. Lecture capture can also support the democratization of access, via MOOCs [Massive Open Online Courses], much as the printing press did in an earlier age [Academic 2].

Academics recognized their role in supporting each other, or being **part of a learning community with other academics** “I’m a scholar: I’m still a student. I am responsible for communicating my knowledge” [Academic 5]. Previous recordings helped course handover [Academic 3]. Peer review is important to academics, but can be threatening if based on recorded lectures. Lecture capture was seen as a threat to **intellectual property**: “Academics don’t want to be automated out” [Academic 4]. Lecture capture could help academics **work efficiently and effectively**. Lectures recorded for face to face programmes can be repurposed for e-learning students. Also, if a lecturer is sick or absent, previous lecture recordings can be used as a means of managing the situation [Academic 3]. There were concerns regarding **litigation and reputational risks** – some academics had asked, unsuccessfully, for the university to indemnify them against student legal action [Academic 6].

Several interviewees stressed the importance of being **innovative educators**. Examples included piloting the use of staff student partnerships for the participatory design of curriculum [Academic 1], and using software which included embedded exercises along with lecture capture [Academic 3]. “In principle, if I were to use recording, I would rather do something special like flipping the classroom, and using professional recording” [Academic 3]. Managers also expressed a preference for such models, and stated that “what students value and perhaps what’s best for the academy are two different things” [Senior Executive Academic]. The broader strategic context for innovation was stressed: “We have to think about smarter ways of delivering learning...We’ve made a few responses to the opportunities that are afforded by technology but haven’t matched that with a business model” [Academic 5]

There was concern that the strategic context would not be fully explored, and instead lecture capture would be used as “a response to student demand” [Academic 5], and as part of a more top down management approach. It was clear that lecture capture was not currently mandated: there was “a university expectation that staff would use this when appropriate” [Senior Executive - Academic]. Indeed, there were some areas where it was explicitly communicated to students that the lecture would not be recorded, due to their discursive nature [Academic 1]. There was, however, “strong encouragement” to record lectures by “anyone from the VC [Vice Chancellor] down...[but] ..some colleagues didn’t do it, and it was evident that this was not terminal” [Academic 3]. “It was put to us that it would be good practice, but around the coffee machine it was said that you ..can’t be made to record lectures” [Academic 4]. Some academics spoke of “succumbing” to lecture capture [Academic 2], “You just give up... trying to resist” [Academic 3].

Academic value	Lecture capture as	
	Threat	Opportunity
To challenge students	√	
To provide a safe space for discussion	√	
To ensure effective student learning of specific skills and knowledge		√
To support equity and inclusivity		√
To be part of a learning community with other academics	√	√
To work efficiently and effectively		√
To develop intellectual property	√	
To manage litigation and reputational risks	√	
To be innovative educators	√	√

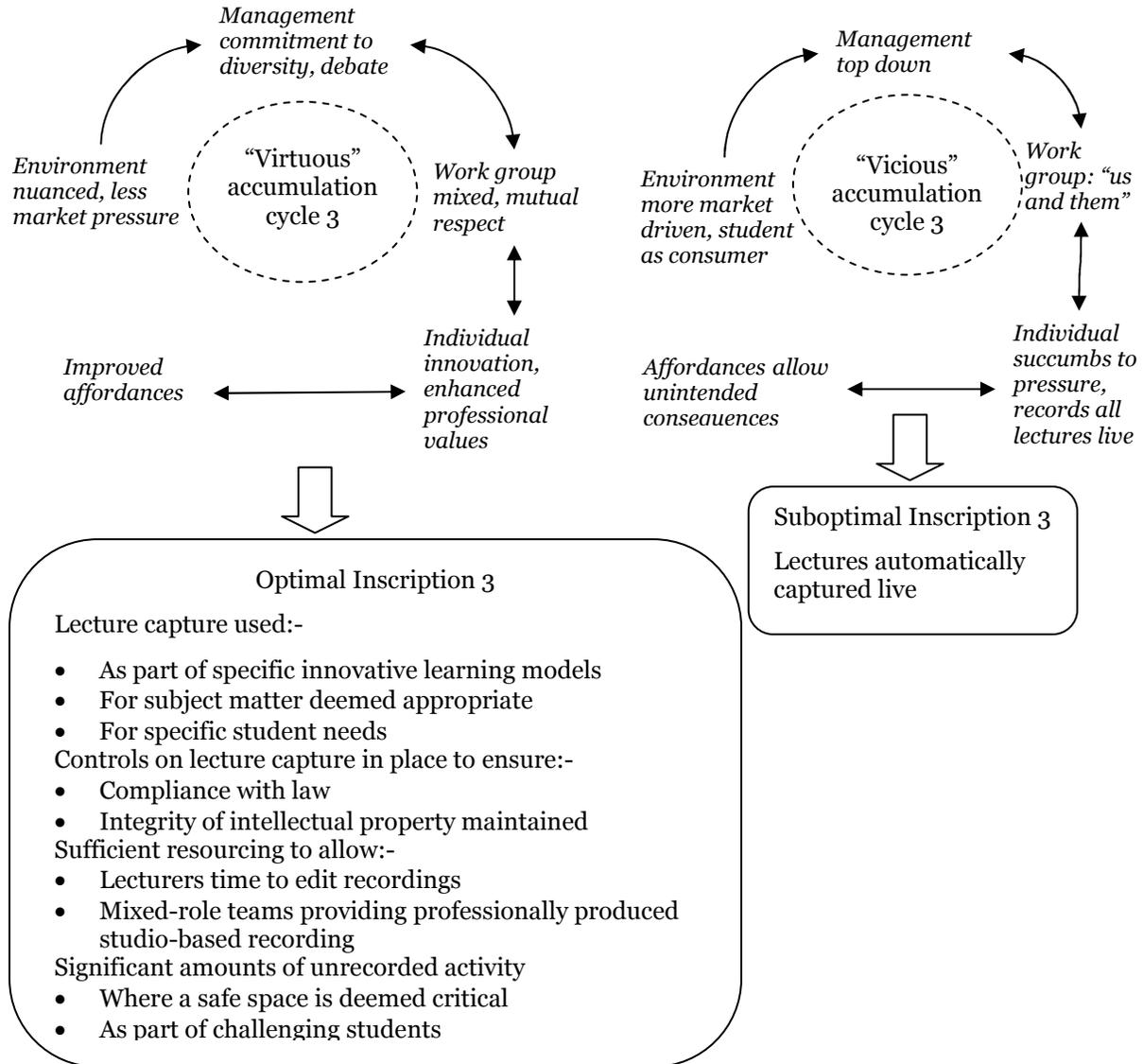
**Table 2: Lecture capture as a threat to/opportunity to enhance academic values**

## Discussion

### *The third cycle of accumulation: virtuous or vicious?*

The mapping in Table 2 allows us to identify two potential future models. One is an optimal inscription which enhances academic values, as a result of a virtuous cycle of accumulation. The other is a suboptimal

inscription which threatens those values, as a result of a vicious cycle. The optimal inscription would use lecture capture as part of specific learning models, when it was appropriate to the subject matter, and when it was needed to meet specific student needs. There would be controls in place to ensure compliance with law, and integrity of intellectual property. While there would be some live lecture capture, much material would be studio-recorded. A significant amount of discussion would not be recorded, to ensure the maintenance of safe spaces, and to allow students to be challenged. The suboptimal inscription is one where all lectures are automatically recorded. The nature of the third inscription, as with the previous two, will depend on the next cycle of accumulation. Figure 2 represents this.



**Figure 2: Diversity management and the virtuous or vicious accumulation cycle**

## Conclusion

This paper provides a model for exploring the way in which technology affects and is affected by members of an organization with diverse professional values. It contributes to theory by demonstrating the use of a specific framework, that of diversity management, to guide the use of actor network theory, and using a case study to illustrate that approach. It contributes to practice by identifying diversity management, and a framework of professional values, as considerations when implementing and managing information systems.

## REFERENCES

- Apple, M. W. 2005. "Education, markets and an audit culture," *Critical Quarterly* (47: 1 – 2)
- Australian Government 2009. "Transforming Australia's Higher Education System."
- Browne, J. 2010. "Securing a sustainable future for higher education: an independent review of higher education funding and student finance. October 12."
- Cecez-Kecmanovic, D., Galliers, R. D., Henfridsson, O., Newell, S., and Vigden, R. 2014. "The Sociomateriality of Information Systems: Current Status, Future Directions," *MIS Quarterly* (38:3), pp 809-830.
- Chatham\_House 1972, 1992, 2002. "The Chatham House Rule."
- Ciborra, C. 2002. *The Labyrinths of Information: Challenging the Wisdom of Systems*, (Oxford University Press.
- Department\_of\_Education, and Australian\_Government 2014. "Higher Education Statistics."
- Derby, J., and Burke, J. 2015. "The Import and Export of American Higher Ed - and Its Governance," in *Trusteeship Magazine*, Association of Governing Boards of Universities and Colleges.
- Doolin, B. 2004. "Power and resistance in the implementation of a medical management information system," *Information Systems Journal* (14), pp 343 - 362.
- Finger, G., Sun, P.-C., and Jamieson-Proctor, R. 2010. "Emerging Frontiers of Learning Online: Digital Ecosystems, Blended Learning, and Implications for Adult Learning," in *Adult Learning in the Digital Age: Perspectives on Online Technologies and Outcomes*, T. T. Kidd and J. Keengwe (eds.), Hershey: New York.
- Gibbons, D. E. 2004. "Friendship and Advice Networks in the Context of Changing Professional Values," *Administrative Science Quarterly* (49:2).
- Guillaume, Y. R. F., Dawson, J., Priola, V., Sacramento, C. A., Woods, S. A., Higson, H. E., Budhwar, P. S., and West, M. A. 2014. "Managing diversity in organizations: An integrative model and agenda for future research," *European Journal of Work and Organizational Psychology* (23:5), pp 783-802.
- HEFCE 2011. Higher Education Funding Council for England "Universities and colleges to provide key information for students." <http://www.hefce.ac.uk/news/newsarchive/2011/Name.94275.en.html> accessed 28<sup>th</sup> Feb 2016
- HEFCE 2016. "Key Information For Students (KIS)." <http://www.hefce.ac.uk/lt/unikis/> accessed 28<sup>th</sup> Feb 2016
- Higson, H., and Henry, M. Year. "University Administrators and Secretaries: Managers or Workers," Labour Process Conference, University of Edinburgh, UK, 1997.
- Jarzabkowski, P. 2005. *Strategy as Practice: an activity-based approach*, (SAGE: London.
- Jongbloed, B. 2003. "Marketisation in Higher Education, Clark's Triangle and the Essential Ingredients of the Markets," *Higher Education Quarterly* (57:2), pp 110-135.
- Latour, B. 1987. *Science in Action*, (Harvard).
- Latour, B. 2005. *Reassembling the Social: An Introduction to Actor-Network Theory*, (Oxford University Press: Oxford, UK.
- Leonard, J. and Higson, H 2014 A Strategic Activity Model of Enterprise System implementation and use: Scaffolding Fluidity *Journal of Strategic Information Systems* 23, 1.
- Majchrzak, A., and Markus, M. L. 2012. "Technology Affordances and Constraints in Management Information Systems (MIS)," in *Encyclopaedia of Management Theory*, E. Kessler (ed.), Sage Publications.
- Miles, M. B., Huberman, M. A., and Saldana, J. 2014. *Qualitative Data Analysis: A methods sourcebook. Third Edition*, (Sage).
- Miller, H., and Higson, H. Year. "Managing Diversity: Managing Academics," British Academy of Management Conference, Manchester, UK, 1999.
- Miller, H., and Higson, H. E. 1996. "Secretaries' and Administrators' Work and Social Relations," in *Society for Research into Higher Education Annual Conference: Working in Higher Education - The Staff Experience*: Cardiff, Wales, UK.
- Miller, H. and Higson H.E. 1999 Managing Diversity, Managing Academics, *British Academy of Management Conference, Manchester, UK*.
- Molesworth, M., Nixon, E., and Scullion, R. 2009. "Having, being and higher education: the marketisation of the university and the transformation of the student into consumer," *Teaching in Higher Education* (14:3), pp 277-287.
- Parker, M., and Jary, D. 1995. "The McUniversity: Organization, Management and Academic Subjectivity," *Organization* (2:2), pp 319-338.
- Pratt, M. G., Rockmann, K. W., and Kaufmann, J. B. 2006. "Constructing professional identity: the role of work and learning cycles in the customisation of identity among medical residents," *Academy of Management Journal* (49:2), pp 235-262.
- Raciti, M. 2010. "Marketing Australian higher education at the turn of the 21st Century: A precis of reforms, commercialisation and the new university hierarchy," *e-journal of Business Education and Scholarship of Teaching* (4:1), pp 32-41.
- Smith, S., and Lambert, R. 2009. "Higher education's importance goes well beyond teaching," The Guardian: UK.
- Stein, M., Scribner, C., and Brown, D. 2013. "Market Forces and the College Classroom: Losing Sovereignty," *American Association of University Professors Journal of Academic Freedom* (4).
- Yin, R.K. 2003 *Case study research: design and methods* (Sage: Thousand Oaks).