

SCHOLARLY CONTENT AND THE LMS: CLASH, COLLABORATE OR COLLAPSE?

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Abstract

Learning management systems facilitating development and delivery of the virtual classroom increasingly characterize and influence higher education provision. Sophisticated proprietary systems and emerging open source solutions support and augment web based course delivery, yet library resources and services generally remain absent and overlooked within these environments. Libraries risk being bypassed and losing relevance to the academic community and to current students if they do not establish a presence in courseware. Librarians need to be proactive, recognising and accommodating the information seeking behaviours of Net Generation students, and establish collaborative partnerships and strong relationships with courseware developers and academic staff.

INTRODUCTION

Over the past decade e-learning has become an increasingly pervasive and influential force in higher education. There is little question that developments in and adoption of virtual learning platforms have resulted in dramatic changes to the design and delivery of tertiary education. Common nomenclature has yet to emerge, with e-learning or virtual systems variously and confusingly called Learning Management Systems (LMS), Course Management Systems (CMS) Learning Content Management Systems (LCMS), Managed Learning Environments (MLE), Learning Support Systems (LSS), Learning Platforms (LP), or Virtual Learning Environments (VLE). This paper, in recognition of emerging Australasian practice, will use the term Learning Management System (LMS) to refer to the range of software packages designed to assist educators create quality online courses and manage learner outcomes (Devedzic, 2006, p.285).

As early as 2001 the absence of a library presence within the LMS, together with a lack of integration of the LMS with the institutional Library Management System and the library's wealth of scholarly materials (both digital and print) was identified (Cohen, 2001). Services and collections provided by libraries were simply not considered in the early design periods of most courseware. Amongst the concerns identified was the uneven and generally poor quality of materials included in LMS vendor provided 'resource centres' compounded by a lack of planning for interfaces to or interoperability with the library.

Despite these early concerns and considerable subsequent efforts to achieve better integration as evidenced in the literature, little real progress appears to have been made. The LMS and the Library Management System largely remain as separate silos, with cultural and organisational divisions on campuses mitigating against librarians, instructional technologists and academic staff working together in achieving robust and authoritative course sites which meet the needs of time poor and increasingly Google dependent student cohorts.

Libraries and their subscribed digital resources can play a critical role in the education of these students. But unless libraries create and clearly articulate convenient ways to embed and integrate resources with the LMS they will lose the opportunity to make a significant contribution to important educational advances. If libraries fail to establish a meaningful presence in the LMS arena they risk being ignored and marginalized from the key learning and teaching business of the university. Commercial information suppliers, who already have a foothold in some courseware environments, may potentially eclipse the library's role as primary scholarly information provider. On a more positive note, the evolution of e-learning provides exciting opportunities for libraries to design and disseminate new services, highlighting their expertise, their irreplaceable resources and assuming a pivotal role in the digital learning and course management environment.

This paper seeks to provide a contextual overview and outlines strategies implemented at the University of Western Sydney, a large urban multi-campus university, taking into account the characteristics of today's students and drawing on documented experiences from across the sector.

CONTEXT

As previously indicated, e-learning is now pervasive and well established, with a range of supporting software platforms available. Blackboard (incorporating WebCT), dominates proprietary systems with Moodle and Sakai taking centre stage in the open source environment. Today's students expect technology to be available to them in support of their learning, and Oblinger and Oblinger (2005) describe, in summary, Net Generation students as digitally literate, preferring to learn by doing; experiential, and more comfortable with image than text.

The availability of scholarly materials in electronic format is similarly pervasive and well established, with the popularity of e-resources now widely recognised. "Anytime, anywhere" access from the desktop, with speed and the ability to download and print materials are obvious underlying reasons. At the University of Western Sydney, 70,000 unique journal titles are available electronically, complemented by a rapidly growing e-book collection of 35,000 titles representing in total a significant investment of over \$6 million per annum. Usage is extremely high across all discipline areas.

Thus it would seem that the natural synergies between the institutional LMS (Blackboard Campus Edition in the UWS context) and rich digital collections of scholarly materials are ripe for exploitation. Yet this has not widely been the case, despite significant efforts at both national and individual institutional levels.

In the United Kingdom the Joint Information Systems Committee (JISC) funded a number of projects within its Digital Libraries in the Classroom Programme throughout

the period 2003 - 2006. The projects may be characterised by an extensive use of acronyms (DELIVER - Digital Electronic Library Integration within Virtual EnviRonments; ANGEL – Authenticated Networked Guided Environment for Learning; JUSTEIS – JISC Usage Surveys Trends in Electronic Information Services, etc) and by a focus on the management and incorporation of reading lists and links to the library catalogue in the LMS. It has not been possible to determine the sustainability and ongoing utilization of tools developed, although Secker (2005) provides a useful summary of the JISC projects at that time.

In the United States investigations have been spearheaded by the Council on Library and Information Resources (CLIR) and its sub-committee the Academic Library Advisory Committee (ALAC), EDUCAUSE, and the Online Computer Library Centre's (OCLC) E-learning Task Force. Outcome based reports of the work of these bodies have not been located, however OCLC's Task Force Report (2003) provides recommendations suggesting coordination by that body of future work, suggesting that libraries on their own may not be able to successfully integrate services into LMSs

The Literature

A review of the literature further confirms awareness that the move to teaching in an online environment presents opportunities to integrate library resources into the LMS to enhance learning experiences at time and point of need. Yet making this happen has proved challenging. This view is confirmed by Gibbons (2005) in a special issue of *Library Technology Reports* devoted to relationships between libraries and learning management systems.

The literature also reveals a plethora of institutional case studies largely drawn from the UK and US, but increasingly complemented by Australian studies. These include Richardson's (2004 and 2005) outlines of the Griffith University experience, Poleykett and Benn's (2007) presentation of online repository developments at the University of Western Australia and Gurney and Wilkes (2008) focus on embedding information literacy modules within online units at the University of New England. The common thrust of such studies both nationally and internationally is an emphasis on linking reading lists (frequently expanded to include teaching resources, and augmented through automation tools) and the incorporation of online information literacy or information skills tutorial modules at either at course or unit level.

Perhaps this emphasis is not unusual, recognising that making available cited reading list materials and information literacy training have long been core and critical components of libraries' work in assuring that required resources are available and that students are equipped to identify, locate and evaluate them. We question, however, whether libraries should not be offering a greater range of resources and services within the LMS – whether we should not be utilizing push strategies to increase both visibility and use of our extensive collections and service offerings in the virtual environment.

Identification of sector practices

A review of Australian University websites was undertaken to identify those services offered by libraries in facilitating the incorporation of library based scholarly materials in institutional LMSs. This revealed a high degree of enthusiasm on the part of the library community to provide carefully prepared and extensive 'instruction' to teaching staff,

generally on how best to prepare and include hyperlinks to library subscribed electronic resources, or have materials loaded to the institutional online repository.

Amongst the frustrations experienced with web based resources is the instability of hyperlinks, leading to a need for frequent checking and re-checking as URLs change. Librarians are well aware of the session specific nature of URLs associated with individual journal articles. We know that Persistent Uniform Resource Locators (PURLs) are necessary in order to ensure reliable access. We know that the format of PURLs may vary publisher by publisher. We know that license conditions prevent access to subscribed materials from IP addresses external to our institution. We know that clients, when off campus, must be verified as legitimate members of our university community to gain access to these materials. We know that authentication software sits behind our services to provide the required verification. We try to ensure that authentication is as simple and transparent as possible. But is it reasonable to expect our academic colleagues to be aware of these issues? No – it is not reasonable – hence the lengthy and detailed ‘instructions’ which, if followed correctly, will ensure the creation of a stable link, and will ensure authentication. But – are we reasonable in our expectation that our busy academic colleagues will follow these instructions? Probably not. Poleykett and Benn (2007) indicate the need for significant promotion of ‘self management’ and a lack of awareness amongst academic staff of available services. Our own experience has shown that academic staff frequently cut and paste session specific URLs in blissful ignorance of the extensive guidance we may have provided. They and their students will consequently experience frustration and disillusionment with library resources when unable to access cited materials due to a dead link or lack of user authentication. Rightly or wrongly, such experiences reflect poorly on the library.

Library support for the e-learning environment and those academic staff responsible for course preparation appears to be predominantly, albeit not exclusively, passive, but extremely well intentioned, carefully prepared and well presented. In order to add real value, we must recognise the time and expertise constraints with which our teaching staff are grappling and proactively assist in providing and making easily accessible high quality scholarly resources and associated services. This may necessitate re-deploying library staff – ceasing work on traditional tasks which, in a changed world, may no longer add value.

STANDING AT THE WRONG PLATFORM?

Libraries must respond to the challenge of bringing the library to learners in a seamless and timely fashion. Unless we develop convenient means of selecting and integrating resources and services no other group within the university will do it well. Gandel (2005) titles his outline of challenges for libraries “Standing at the wrong platform, waiting for the wrong train”. The title is clever and apt, although the author does point out that questions concerning the role of libraries in the digital world are not new and that libraries have continued to adapt and operate effectively despite dire predictions of their imminent demise. Nevertheless, the “wrong platform or train” analogy may well be characterised by some unwillingness to move beyond our traditional territory into more challenging areas requiring greater collaboration with others and active participation in a world where Google and Google Scholar are often the sources of first choice. We must position ourselves and our quality scholarly resources at the centre rather than the periphery of this world.

It has also been argued (Stubley, 2006), that only if the library can justify its existence by developing and delivering services relevant to the university's core business will it continue to have the support of senior managers. Such support is essential to garner funding. Funding is essential to provide collections and services, and to survive and flourish. So let's bother – acknowledging political imperatives should the social and technological challenges of meeting the needs and expectations of today's students seem too daunting or difficult.

Our students

The characteristics of NetGen or Millennial students are well documented, however disconnects between these students and academic libraries abound. The most common and pervasive, previously alluded to, is students' dependence on and use of Google or similar search engines for discovery of information rather than the library web site, catalogue, databases or subscribed full text digital materials. Our finding aids are complex, non intuitive, with a range of search strategies required depending on publisher platform. Sadly for librarians, students are largely uninterested in formal instruction in information literacy or information skills, preferring the simplistic but responsive Google. Yet students have an expectation that high quality resources will be provided for them to support their learning, and can become overwhelmed by the quagmire of misinformation retrieved from the web. A further major disconnect is that the library's digital resources reside outside the environment which is frequently the digital home of students' coursework – namely the LMS. (Lippincott, 2005)

Our systems

Library systems are inventory based, having been developed predominantly as stock acquisition, control, access and circulation tools, and representing early adoption of Information and Computing Technology (ICT). The Library Management System is possibly the most complex enterprise system on campus, however its front end (the Online Public Access Catalogue, OPAC), is at the end of its lifecycle. Students can no longer be expected to undertake the detailed multi-step searching required, and librarians are slowly (albeit reluctantly) relinquishing their role as intermediaries who skillfully utilize elaborate Boolean search strategies in bringing together the client and the collections. Federated search tools, although still in their infancy, and still under development, facilitate a single, simple search to interrogate a range of library resources including the catalogue, databases, full text sources and selective externally hosted web based materials. A Google like search will yield Google like results, together with topic clustering, intuitive guidance and increasing Web2 features and functionality. Such tools, although imperfect, must be implemented and their use promulgated across our institutions.

Our competitors

LMS vendors provide and promote access to 'resource centres' within the licensing conditions of their products. Such centres, usually arranged by discipline, are set up to assist students and academic staff with research. Blackboard, for example, promotes its resource centre as including "high quality educational content and information". Although not accessible to non-enrolled students or staff, these resource pages seem to point to free electronic journal collections, abridged versions of bundled journal suites, and to sites which provide content for a fee. Much is lost in this approach, which does

not encourage exploration of rich institutional collections built and developed by libraries. Students should be guided to, or provided with direct access to, authoritative and trustworthy resources.

Blackboard is also increasingly forming alliances with publishers, providing 'course cartridges' comprising pre-packaged course materials – PowerPoint slides, documents, multimedia files and quizzes – ready to use. The cartridges are generally tied to a specific text which students must purchase in order to obtain the digital 'key' which facilitates access to the associated course materials through the LMS. To date, Pearson, a major multinational textbook publisher (which acquired the eCollege CMS at a cost of US \$477 mill in 2007) has dominated, however Blackboard cites the availability of over 3,000 cartridges sourced from 32 publishers. Pearson also markets its "Research Navigator: Resources for college research assignments" incorporating four generalist databases and purported research guidance – for a peppercorn payment (currently US\$15.00 provides six months access). The trend to produce and market pre-packaged courses and associated materials for the LMS environment is growing rapidly, with Reed Elsevier, the world's largest and most powerful publisher having entered this market. More recently, Thomson Reuters, another of the publishing giants, has launched Mentor, "an online interactive learning space that supports student learning and excellence in teaching" claiming to offer a comprehensive range of online teaching and learning resources. Online education is an increasingly attractive draw card for publishers – an industry group uncharacterized by altruism.

Such developments should be of concern, not only to libraries, but to all who value quality education, which includes critical thinking and student exposure to breadth and depth of knowledge and opinion within and across disciplines. Such pre-packaging bodes poorly for the development of graduates equipped with the critical thinking abilities and attributes required to pursue lifelong learning. They may have some limited place in the training rather than the tertiary education sector.

THE UWS EXPERIENCE

There is a strong commitment to e-learning at UWS, with a blended learning approach applicable to the majority of courses. It is a university expectation that all units will make available an LMS site in all taught units, and over 700 sites are usually active. Within UWS, the Blackboard CE platform is known as *vUWS* (*V*irtual *U*WS). *vUWS* is well regarded by students, who rank it second only to the library in terms of overall satisfaction across 81 institutional variables. UWS students are generally highly computer literate, rapidly embracing electronic delivery of a wide range of resources and services.

Responsibility for the LMS (including training and support) is vested in the Educational Development Centre, which, together with the University Library, is organizationally located within the portfolio of the Deputy Vice-Chancellor, Academic and Enterprise. Its Director reports to the Pro-Vice-Chancellor Teaching and Learning whilst the University Librarian reports to the Deputy Vice-Chancellor. Organizationally, the two units are well placed in terms of facilitating cooperation, collaboration and the formation of natural strategic alliances.

Despite organisational placement and pedagogical synergies, levels of collaboration are not yet optimal with cultural differences continuing to characterize much interaction.

Friction is not uncommon elsewhere across the sector, and cultural barriers are well documented. Bell and Shank's (2004) survey results reporting little contact between librarians and LMS administrators are typical. Thorin's work (2005) attributes tension to a lack of involvement of librarians in initial planning and the perception that libraries are not key players in the courseware environment, evidencing a lack of understanding of libraries' role. She makes the very salient point "As different as the library and technologist cultures are, neither group will be successful without the help of the other." Librarians are not blameless in the current state of affairs. It could be argued that we have been complacent, resting on past glories and have failed to adequately address students' information needs in an era where they may not ever visit the physical library.

A further area of cultural complexity arises from the differing natures of the Library Management System and the LMS. Libraries have traditionally sought and strived for openness and transparency in their systems, whereas the LMS environment is closed to all but enrolled students and their teacher. The imposition of very strict access conditions represents a curiosity to libraries, which have, over generations, enjoyed unfettered participation in traditional course development and delivery. The library's emphasis on open systems is probably equally curious to LMS administrators who closely guard the sanctity of the online classroom. Indeed, UWS senior executive requests for wider access to LMS sites led, in early 2008, to potential industrial action.

But future collaboration around the LMS is not optional – it is essential. Put simply, ownership of content (including library based resources) is vested in academic staff and the library, whilst ownership of the technology and training and assistance in its use resides elsewhere. Without the content and the technology complementing one another, it will become increasingly difficult to offer an effective and pedagogically sound online learning environment. The university community as a whole does not care about the cultural differences, and will become increasingly impatient with obfuscation and delay. (Gibbons, 2005)

Initial investigations

Whilst the UWS student community makes heavy use of the library's rich electronic collection and associated services, demonstrating high levels of e-literacy, the library perceived that the full potential of these offerings may not be being fully exploited by the academic community. In late 2006 into early 2007 a project was undertaken to test these perceptions. Amongst the findings of a study in which 82 academic staff participated were high levels of satisfaction with electronic collections, but limited awareness and utilization of the range of materials available. Similarly, we identified scant incorporation of e-resources (or hyperlinks to sources) and e-services in LMS sites. (Curach, 2007). Significant variation in the structure and content of LMS sites was apparent, with only two study participants including a link to the library on their sites. Most sites made available a unit outline which includes a reading list, with a small minority of participants linking to digitized materials accessible via the library's e-reserve. Low use of e-resources was reportedly most commonly influenced by copyright concerns, time constraints related to site maintenance and current levels of knowledge of how to use e-resources in the LMS.

These results, although disappointing, were entirely predictable, and formed a strong basis from which to develop and put in place remediation strategies. The subsequent

work has been a strong focus throughout 2008, with formal evaluation to take place at the conclusion of the 2008 academic year.

Remedial strategies

The library initially sought a simple presence through a hyperlinked icon to the library website on all vUWS sites. After much discussion, this was eventually agreed, however the hyperlink was effectively 'hidden', located under Blackboard's 'Weblinks' panel, and thus inaccessible via any intuitive means. We then sought global designer access to sites in order that a library staff member might meaningfully locate the icon on sites. It was not possible for such access to be granted. These initial setbacks were discouraging, however in hindsight they provided considerable impetus to the more ambitious efforts that followed.

What did we believe students needed from the library in the vUWS environment? We established that at a minimum the following should be provided:

- A link to the library website;
- A link to the library's online information literacy tutorial;
- A link to 'Info Central', the library's virtual reference service;
- Reading lists which included stable hyperlinks to electronic materials (both those born digital and digitized on request);
- A link to library developed citation style sheets.

Having cobbled together this initial wish list of what we wanted to include in LMS sites the very real challenge of how to ensure inclusion needed to be addressed. This responsibility fell primarily to our Associate Librarian, Client Services – a consummate, strategically focused professional with extremely well developed interpersonal skills.

She needed to communicate directly with the teaching community. Initially broadcast emails were dispatched, outlining the library's wish to contribute to the online learning environment. Little response was received (such is the nature of broadcast email), however follow up meetings or telephone conversations were initiated with those academic colleagues who did respond. The essence of such conversations was "Look what we can do for you if you'll grant us brief designer access to your vUWS site." Drawing heavily on the skills, commitment and interest of a single staff member library magic was done, rapidly incorporating our suite of offerings where site access was granted. Without exception, teaching staff were delighted, and this delight factor was unashamedly exploited in future interactions across the university. The link inclusion proved relatively straightforward; however the reading list issue was somewhat more complex and messy.

As all library folk are well aware, reading lists are problematic. They are frequently received too late to ensure library acquisition of cited materials, citations are often incorrect, many include reference to superseded or dated titles and, in the UWS case, few included reference to electronic editions. In instances where journals were held electronically, this was not indicated. Major and intensive work on reading lists was required. This work fell to Liaison Librarians assigned to each of the UWS Schools. The Librarians pro-actively sought current copies of all reading lists for all units taught across Semester 2, 2008. The Liaison group worked on the lists, including Persistent URL's for all electronic journal articles and replacing reference to print monographs with

electronic equivalents where available. They also suggested alternate titles available in electronic format where appropriate. All reading lists were re-formatted into a standard, clearly legible format, returned to the originating academic for final approval prior to being loaded to the LMS. The overall process was extremely time consuming, requiring great attention to detail and persistence in pursuit of the final, 'approved' version. In total, over 400 reading lists were processed and enhanced. Loans staff were co-opted to assist in the task of constructing persistent URLs and, copyright permitting, digitizing born print materials. As a bonus spin-off this work represented an extension to the routine duties of this group, providing skills enhancement and significant job enrichment and is now a core component of their duties.

During the period the majority of client services staff were preoccupied with enhancing reading lists, the Associate Librarian was meeting and talking with teaching staff. She persistently telephoned, seeking appointments – to spread the word of “Look what we can do for you” As an interesting aside, a vital introductory strategy underpinning all contact was prefacing the conversation with an assurance that the library would not be asking anything of the staff other than a few minutes of their time. We did not want them to do anything – rather we wished to do things on their behalf. Such scenarios bear testimony to the significant workload issues experienced by teaching staff in our universities.

In addition, timeslots were sought in School meetings where a brief but tantalizing presentation was made, illustrating the functionality and value adding we were seeking to introduce. Such presentations were uniformly well received, with follow up contact generally yielding fruitful results.

The Enhancements

As the project progressed and enthusiasm increased, further enhancements to core functionality were developed and added. A library toolbar, functioning in a similar manner to the ubiquitous Google toolbar was developed to search all the library's resources and yield high quality results. The wide single search builds upon an earlier implementation of a basic federated search engine which we have called SearchCentral. SearchCentral provides the facility to simultaneously search all databases and the library catalogue via a single search. Searches may be limited to library defined subject groupings, or, although inadvisable in terms of number of hits returned, the entire collection.

So – as a further enhancement – SearchCentral was included in our suite of LMS offerings. To add a level of sophistication and avoid retrieval overload, SearchCentral has search parameters individually tailored for each vUWS site to exclude resources irrelevant to the discipline area.

Enhancements have also been incorporated in reading list provision and presentation, accommodating the wishes of some teaching staff to associate readings with each week's activities rather than separated from those activities in a single whole of session listing. We now offer choice in terms of presentation.

2009 will see further enhancements with the introduction of RSS feeds to pipe tailored dynamic new content into sites, and investigation of the addition of a widget to facilitate direct chat sessions with a librarian are well advanced. The implementation of a more

sophisticated web2 based federated search engine over the 2008/2009 long vacation will bring even greater functionality and intuitive search capabilities.

The Outcomes

The project, whilst still in its early stages, has been an overwhelming success, with 235 Spring session 2008 vUWS sites now incorporating library content designed to provide rapid and seamless access to quality scholarly materials in support of student learning. From the students' perspective the process is entirely seamless. Some concern was initially expressed by a lack of library 'branding' on reading list materials accessed directly via hyperlinks from a reading list, however the purpose of the exercise is not one of promotion – it is of facilitating rapid and intuitive information provision. Students are, however, aware of the library's presence and potential through the consistent use of standard icons.

Academic staff have warmly embraced our offerings, generally displaying no reluctance in providing designer access to their sites. Our School of Nursing has mandated the inclusion of the library offerings in all sites, and we are hopeful that other Schools will follow this lead. Students have similarly responded positively, with many querying why they did not have equivalent level of library support from within all their vUWS sites.

Materials' usage statistics and web logs are not yet available, but it is not unrealistic to anticipate that these will illustrate increases on pre-existing high usage. Perhaps more importantly, the library has demonstrated expertise in an area from which we had been excluded. A slight risk requiring monitoring is that the expertise developed will be over-extended in providing assistance with LMS queries unrelated to library service provision.

The Future

We will continue these efforts, refining and enhancing as issues emerge. At the time of writing (October 2008), staff are already working on reading lists for the forthcoming semester and processes are becoming refined. Teaching staff are also being targeted again, with an emphasis on those with whom we were unable to make contact or who did not respond to approaches during the initial phase.

The major issue is, of course, that of sustainability. Amongst the keys to success have been the personal approaches undertaken by a single library manager together with the particular skills and expertise of a single member of her staff. Liaison Librarians initially showed some reluctance in persevering in their personal approaches to academic staff and this is an issue we are currently addressing. Training of an additional staff member in LMS designer work is also underway. A little process and personnel redundancy would add reassurance which is currently lacking due to single points of failure. We have identified a need for broad staff development to ensure that all library staff have a better understanding of how the LMS works, what the course sites look like, how they function and how academic staff are variously using them. Such understandings are essential if the library is to continue to make positive contributions to the institutional online learning environment.

Ideally of course, the work and associated staff development would be systematized in collaboration with those responsible for LMS operations and the academic community.

Despite initial setbacks, we will continue to seek opportunities for collaboration and cooperation in ensuring the best possible outcomes for our students and their teachers.

CONCLUSION

The librarians of the University of Western Sydney have taken positive steps in developing innovative services and liaising with academic staff across all Schools in ensuring a library presence in virtual course offerings. Significant progress has been made, however further effort is required to explain the library role in the information management and dissemination chain. More sustainable and enterprise wide approaches must be developed, and these cannot be achieved in isolation. Macro – level solutions are needed. The UWS experience is not dissimilar to that of other academic libraries as reported in the literature, with the development and delivery of micro – level strategies. But we have not yet found our way through cultural barriers, nor have we made significant inroads into the separate silos of library systems and culture and those of the e-learning support community. It is essential that paths be found, and synergies recognised and exploited in the interests of supporting the core learning and teaching activities of the university. To ignore these issues rather than working constructively together will only result in clash and an inevitable eventual collapse, not only in terms of workload, but perhaps more importantly in terms of institutional credibility and support.

Collaboration and cooperation are not only the best ways forward – they are the only ways forward.

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