The UCLA Opus Faculty Dossier System: Trade-offs analysis

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1. Introduction

The UCLA Academic Personnel Office is currently developing a centralized database (Opus) that will collect data relative to faculty professional activities from a wide variety of internal and external sources. The stated objective of project is to computerize the paperwork required for academic personnel actions, so that they can be dealt with electronically.

The evaluation of one's colleagues is an exacting and highly charged process, on which depends employment, career advancement, rewards, and institutional reputation. The rules and mechanisms of this process must balance the need for institutional accountability with that of providing scholars with the conditions for career-long creativity and innovation. A centralized electronic database sets in play a series of dynamics that will transform in subtle and not-so-subtle ways the faculty evaluation process. The development of Opus will create a unique technological object on campus: no other system will (and is likely to) systematically collect as much information about the professional activities of any other group on campus, including students, staff, and administrators. While Opus will undoubtedly bring many benefits to both faculty and administration, this document frames these transformations as a series of *trade-offs*, that is, the benefits of Opus will also entail new risks, costs, and challenges.

I discuss (2) the general trends around faculty data and the measurement of faculty professional activities; (3) the development of Opus, a "faculty information system" developed to facilitate the circulation and evaluation of faculty dossiers for merit and promotion, as well as the collection of data and production of statistics on faculty performance; and (4) the various challenges Opus poses with respect to data entry, disciplinary cultures, performance review, and privacy.

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2. The Faculty Data Landscape

The scholarly and teaching activities of faculty have, of course, always generated institutional data used in the service of management – numbers of students enrolled for courses being the most obvious one. And of course, the number of publications has become firmly established as the primary indicator of faculty productivity. But in recent years, fueled by the spread of ICTs, data relative to faculty activities have multiplied, become embedded in new technical, commercial and institutional circuits that have multiplied its social and economic value. These data fall under several categories:

Publications-related data:

- Citation indexes, such as Thomson Reuters's <u>Web of Science</u> or Elsevier's <u>Scopus</u>, have been around since the mid-sixties, collecting statistics in order to derive bibliographic measures such as journal impact factor. Such metrics are routinely used by libraries to guide collection development, funding agencies to identify disciplinary trends, and tenure committees to gauge productivity and impact of scholars.
- **Publication aggregators,** such as <u>Google Scholar</u>, allow researchers to create profiles, link to their publications and automatically calculate various scholarly metrics, including their <u>h-index</u>.
- Preprint repositories, such as arXiv.org at Cornell, <u>SelectedWorks</u> at the Berkeley Press, and the <u>Social Science Research Network</u> provide scholars with platforms from which to disseminate their work and collect usage metrics about downloads and views. Such platforms have also given valence to the so-called "<u>alt-metrics</u>" movement that aims to provide new measurements of scholarly performance and impact (see <u>Reader Meter</u>, <u>Science Card</u>, <u>ImpactStory</u>, and the <u>NISO Alternative Assessment</u> <u>Initiative</u>). These measurements would incorporate new avenues for dissemination of scholarly ideas (e.g., blogs), but also new types of scholarly outputs not yet recognized in the promotion process, e.g., electronic journals, computer code, or data sets.
- Academic Social Media: Numerous sites targeted at academics offer all possible variations on the Facebook theme of sharing, friending, liking, following, --- e.g., <u>Academia.edu</u>, <u>ResearchGate</u>, <u>GoingOn</u>, with some of these sites originating from bibliographic tools, such <u>Mendeley</u> and <u>Zotero</u>. These tools promise to help academics identify other researchers with similar interests, spark collaborations.

In addition, entirely new forms of services are offered and required:

- **Data repositories,** such as <u>Dataverse</u> or <u>Dryad</u>, that allows for the submission, sharing, citation, long-term preservation, and the collection of usage metrics for data sets.
- **Researcher Identifier Systems,** such as <u>ORCID</u> and <u>ResearcherID</u>, aim to provide identifiers to disambiguate between scholars with identical names.

Salaries – For several years now, faculty salaries have been made available in electronic format to newspapers. These have in turn developed sophisticated online tools to query and visualize datasets, e.g., <u>UC staff and faculty salaries</u> at the San Francisco Chronicle.

Teaching evaluations – Reputation systems, such as <u>RateMyProfessors</u>, <u>CampusBuddy</u>, or UCLA's own <u>BruinWalk</u> collect unofficial teaching evaluations from students, typically with little to no authentication. In addition, some universities make evaluation metrics available online, such as the <u>University of Oregon</u>.²

Expertise systems – Services such as <u>Pivot</u>, enable researchers to fill out profiles so as to increase their visibility among their peers or to third-parties. The <u>Vivo</u> project in particular aims to define and standardize the contents of faculty profiles so these can be automatically populated and harvested.

Learning Management Systems – Such systems, (e.g., UCLA's Moodle-based CCLE) collect numerous "transactional" data points about the activities of all its users – time, date, and duration of log ins, time and data of access of pages, etc. For example, Blackboard's "<u>Performance Dashboard</u>" provides "a view into all types of user activity in a course or organization. All users enrolled in your course are listed, including instructors, students, teaching assistants, graders, observers, and guests, with pertinent information about each user's progress and activity."

Course grading statistics — While students' individual grades are confidential, commercial companies such as <u>myEdu.com</u> have successfully sued to gain access to certain kinds of statistics on faculty courses. Integrated into course scheduling software, these statistics include grade distribution — how many As, Bs, ... awarded by a faculty for each course, as well as overall grade distribution for all courses taught by a faculty — and drop rates for each course.

 $^{^2}$ It should be noted that textual evaluations can be converted to numerical values through the use of so-called "sentiment analysis" – a technology used for comments in newspapers for example.

Plagiarism and grading software – <u>Turnitin</u>, a tool directly integrated into UCLA's CCLE platform, offers an option for "<u>Common Core Rubric Reports</u>," that produce charts of data relative to papers graded.

Clearly, as these systems add features and combine with one another, their ultimate shape is anyone's guess. As well, which ones come to dominate the marketplace, and how this marketplace is partitioned between the private (e.g., publishers, software companies, computer manufacturers) and public sector (e.g., universities, standardization bodies) remains to be seen. Whatever the case, faculty labor will become increasingly bound in the economic, technological, and institutional circuits that create, organize, and circulate faculty data. Online teaching will do much to fuel this dynamic, as it provides for the automatic collection vast amounts of interactional data. Adding to this dynamic, the <u>Open Data</u> movement has put public institutions under increased pressure to make data sets available to the general public, to promote both accountability and innovation.³

Clearly then, the data generated from faculty's teaching, research and professional activities is *valuable*.⁴ Academic analytics, the collection, aggregation, and processing of these various kinds of faculty data promises to be a lucrative business, with small (e.g., Academic Analytics) and large companies (e.g., Thomson Reuters' <u>Research in View</u>, Elsevier's <u>SciVal</u>) entering the market, selling either data, software, or combinations of both. This value is spurred by the many competing schemes currently available to rank institutions nationally and internationally, some of which (e.g., <u>High Impact Universities Research</u> <u>Performance Index</u>) rely heavily on publication metrics.

Faculty data is of course valuable at the administrative level, as a tool that promises to make management of faculty as rational as ranked lists and numbers are — Thomson Reuters' <u>Research in View</u> promotional video is particularly telling on this front, or the University of Texas System "<u>Productivity</u> <u>Dashboard</u>." But faculty data is also valuable at yet another level — faculty salaries and teaching evaluations, for example, function as potent symbols that actively shape public perception of faculty's fulfillment of their professional mission. As a consequence of this triple valuation — economic, administrative, and symbolic — control of faculty data will likely become increasingly contested and will constitute a major strategic issue for the future of the profession.

³ See for example the City of Los Angeles Controller "<u>Controller Data</u>" site.

⁴ Of course, *student* data is even more valuable, understood by many data entrepreneurs as the raw material that will fuel the next higher education gold rush.

3. The Opus Faculty Dossier System

The idea of computerizing the promotion and review process at UCLA goes back many years, and, in the absence of a centralized solution, several individual schools (including engineering and <u>life sciences</u>) had already developed in-house systems to do so. Following the <u>recommendations</u> of a 2010 joint administrationsenate committee, the UCLA Vice-Chancellor for Academic Personnel established in 2011 a <u>Steering Committee</u> for the "Electronic Dossier and Review Initiative" (now called Opus). The Vice-Chancellor also hired a project director with experience leading a similar project at Ohio State University. Two main issues, *efficiency and accuracy*, provided the initial rationale behind the system:

Efficiency – As any UC faculty is keenly aware, the merit and promotion process is extraordinarily time consuming, if only for the generation of the data summary itself and the collection of the various required documents, such as publications, teaching evaluations, etc. Once the dossier has been assembled and submitted, it must also move through a series of prescribed steps, from ad-hoc committee to Chair to Dean to APO to CAP, etc., accreting along the way many additional pieces of evidence, including external letters, Chair letters, etc. By providing a single access point to these documents, a computerized faculty dossier system would cut down on the movement of bulky files between the various parties that need to access them.

Accuracy – The data provided by faculty for their dossier is only weakly standardized, which creates numerous difficulties for both the APO and CAP who are tasked with the evaluation of dossiers from disciplinary cultures as different as geriatric medicine, library science, and critical dance studies. This is particularly the case when it comes to research, where what counts as an original publication widely varies. Furthermore, as faculty repurpose research findings for different publication venues, it can become difficult to precisely track original contributions and assess a scholar's productivity.

Initial discussion of a faculty dossier system thus focused on two principal components. The first one is a *workflow system* that routes a faculty dossier through the merit and promotion process. As can be seen in figure 1 below, within each academic personnel series (e.g., professorial, adjuncts, clinical, etc.) and for each person responsible for fulfilling a certain function (e.g., the faculty under review, ad-hoc committee member, APO personnel, Chair, Dean, CAP member, etc.), the system will provide access to relevant documents as well as specifying the actions required by that person (e.g., provide a report, approve and forward documents, etc.).

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Figure 1 & 2. From "<u>Opus – Presentation to the Council of Faculty Chairs</u>," 11/7/2013

The second component, and by far the most complex one, aims at capturing faculty data for the purpose of automatically generating the data summary required for personnel actions.⁵ As can be seen in figure 2, the data can either be directly and automatically extracted from other existing systems on campus, e.g., course data from registrar, or entered manually by faculty itself. In the first case, certain fields would not be modifiable (e.g., enrollment), while others (e.g., percentage of teaching responsibility) would be. In the second case, (e.g., professional activities), all of the data would be entered by the faculty, field by field (in the case here: year, organization, activity, role, and any additional comments).



Figure 3. "Opus Map of Data Sources"

As shown in figure 3, the data would be pulled from a broad range of sources: within UCLA itself, the registrar, contracts and grants, graduate division, etc;

⁵ One should note that a workflow system does *not* in and of itself require the management of faculty data, but can be implemented simply using PDF versions of all documents, with faculty generating their data summaries just as they did in the past.

externally, from publication aggregators, repositories, citation indexing systems, etc.

The creation of such a system is requiring the designation and standardization of authoritative data sources — *systems of record*. Because different systems may hold different copies of the same data, the Opus team has designated certain systems as "systems of record." The organization entity that manages the system will be responsible for ensuring the reliability of the data. This responsibility will include having clear procedures (including designated contact person and maximum response time) for responding to faculty queries concerning erroneous data. Systems of record would thus establish institutional procedures for ensuring trust in the quality of Opus data.

4. Benefits and Trade-offs

The following functions of Opus have been listed as providing new or additional benefits to faculty:

- Fairer and more accurate evaluation process due to reduction in error, confusion and lack of standardization in both procedures and dossier preparation;
- Reduced effort in producing data summaries for dossiers and biosketches for funding agencies;
- Reduced effort in locating data and documents (registrar, teaching evaluations, etc.);
- Elimination of the cumbersomeness of circulating and manipulating about large paper dossiers;
- Identification of potential collaborators on campus.

Like most such complex technological transformations, Opus will also introduce a series of new challenges, risks, and costs with respect to (a) data entry, (b) standardization, (c) performance review; (d) public record requests; (e) and technological design as policy making.

(a) Automated translation vs. manual entry

For Opus to process data, it must first be filled with data. As figure 3 shows, some of that data will be imported automatically from either internal (e.g., registrar) or external (e.g., publications) databases, but a significant portion of faculty's data summaries is comprised of elements that only exists within their own CVs, or is not available in any structured form – e.g., committee appointments, public presentations. As well, a simple search of one's own name in say, Google Scholar, will exhibit that data for some publications (e.g., book chapters, foreign publications) either does not show up or requires considerable cleanup.

Data entry and cleanup will be onerous. Looking at figure 2 again, depending on the particular data ontology Opus adopts, a single entry for a committee appointment might involve entering the year, the name of the committee, the type (departmental, Senate, other), the role (chair, member, chair-elect, exofficio), and additional comments if applicable. Depending on the format the Opus team chooses, entering a single paper presented at a conference could entail separately entering each author, title, title of panel, panel chair(s), conference name, date, location, etc. For many faculty, such data entry will represent a labor-intensive task.

The Opus team is considering the development of software 'translators', that might take as input a faculty CV and output Opus-ready formatted data. Because there is no standard to, for example, cite a conference presentation, membership in a Senate committee, or advising students, any such automatic translation, if available at all, would likely need to be supplemented by manual data entry. The best person of course to perform that task is faculty itself, who have the most intimate knowledge of their own CVs and must also sign off on the veracity and accuracy of their data summaries at the time of a personnel action.

Whether the Opus team will be subsidizing data entry and cleanup, at what rate, and for what faculty, remains to be discussed. Faculty with laboratories and financial resources will be able to hire student assistants to help out with the task, while others will likely have to expend considerable time performing a tedious and time-consuming clerical task. One thing is sure: faculty would be wise to negotiate, as part of any hiring package, the entry of their CV into whatever similar system will be used at their new institution. Even if Opus provides for the extraction of its data into say, a Word document or an XML file, it will likely take years before such systems agree on a common data ontology.

(b) Standardization vs. disciplinary diversity

Research universities are comprised of an wide range of disciplines, each with different historical trajectories, sets of concerns, epistemologies, concepts, relationships to professional practice, methodological approaches, etc. However, the more standardized the data, the more valuable it becomes, as more elements become comparable, processable, sortable, rankable. One consequence of Opus will thus be a significant standardization of the process of academic evaluation, through the centralization of both process rules and the data ontology of academic CVs. In the current (pre-Opus) system, there are at least four levels of rules that specify the evidence required and the evaluation process of merit and promotion cases:

• At the system-wide level, <u>APM 210</u> 1-d specifies the criteria for appointment, promotion and appraisal;

- At the UCLA campus level, the CALL provides further guidelines to these criteria, for example, <u>Appendix 3</u> further specifies how to provide evidence of teaching ability;
- At the School and/or Departmental level, by-laws may specify rules relatives to, for example, the constitution of departmental ad-hoc committees and their interaction with faculty under review, and which faculty may vote. The <u>History department's bylaws</u> for example, specify that the departmental Academic Personnel Committee has "responsibility for previewing the Vice Chair for Academic Personnel's letters transmitting recommendations for merit increases and contract renewals that are within its purview and can recommend changes."
- Lastly, "departmental practice" may dictate how certain required documents are constituted or process conducted. In the case of peer review of teaching for example, <u>Appendix 3</u> notes that "specification of the meaning of "peer review" varies by department, each department having established its own guidelines for developing the requisite peer review of teaching." The Academic Personnel administrative assistant in a given school is likely to provide advice as to what constitutes established departmental practice.

The document that itself serves to report faculty data, the "<u>Data Summary</u>" is a standardized document provided by the UCLA APO. The document specifies broad categories (e.g., teaching, publications, professional service) for data reporting. It provides on page 8 a "Guide to Bibliographic Preparation" to help organize the most vexing and most important of the data summary, the publications bibliography that testifies to a scholar's research output. Some of these instructions are concerned with the classification of publications into a more or less standard scheme:

"Entries should be identified by categories, such as: Books, Monographs, Published Research Papers, Published Articles, Abstracts, and Book Reviews. Since categories will vary among the disciplines, departments may wish to adopt their own categories. (The Council on Academic Personnel recommends departments consider providing bibliographic items by category.)"

Others are concerned with clarifying the status (in preparation, submitted, published, etc.) of a publication and ensuring it is not counted multiple times in distinct reviews:

"If a current published item was listed in an earlier submission as "in preparation" or "in press," it should be so indicated."; "All publications added since the last review should be bracketed in the left margin."

Others are concerned with determining the quantity of the output: "Page Numbers: Both first and last page should be cited."

The Opus system will largely resolve the issues, by imposing a single faculty data ontology for all departments at UCLA. Review committees will be able to clearly identify the specific trajectories of publications through distinct reviews. Standardization will also allow certain fields, in particular the arts, whose scholarly output does not fit traditional categories, to become better represented in productivity statistics. However, insofar as it will prescribe a common set of categories for all items in the data summary, in particular, publications and creative works, Opus will flatten disciplinary diversity across campus.

Academic outputs are connected to systems of value outside of scholarship per se, systems that are often extremely difficult to compare: in law, a measure of high impact would include having one's work cited in a supreme court decision; in the arts, being represented by a reputable gallery. No single representation of faculty activities is likely to unify these systems of value into a single whole. To a degree, the design of the system might alleviate this effect, by allowing faculty to individually annotate each publication with comments that will contextualize the data (as is done with respect to co-authorship). There is however a clear dynamic between the need for centralization for the purposes of comparison with the pragmatic recognition that a research university is a necessarily loose coalition of highly diverse disciplinary cultures.⁶

(c) Quantitative vs. qualitative evaluation

Faculty will be collaborating in ensuring the proper feeding and care of the data into an information system that will potentially provide all types of measures on their performance, at the individual or at any aggregate level. Once the data is consolidated within a single information system, there are no practical limits to the relationships that can be established between the fields of the database. Indeed, a <u>stated goal of Opus</u> is to provide for reporting of data:

"Opus's reporting tools will support administrative decision-making by allowing appropriate users to view, edit, and create reports that provide new contextual views of data from multiple campus systems. The tools will also facilitate compliance with departmental, campus, and systemwide reporting requirements."

⁶ "Fittingly for the diversity of academic programs at UCLA, The CALL does not prescribe a standard regimen for peer evaluation." <u>https://www.apo.ucla.edu/initiatives/peer-evaluation</u>

There is nothing per se that precludes the inclusion of such reports into the faculty review process. Other than those that deal with the selection of external reviewers, no UC or campus-level rules proscribe the use of particular kinds of evidence in assessing a faculty's scholarship or teaching. In the case of teaching, faculty *must* provide teaching evaluations and some form or another of peer teaching review, but faculty dossier often include (solicited or unsolicited) letters from advisees, syllabi, and any other evidence that might help committees evaluate a faculty's teaching performance. Similarly, for the evaluation of faculty's research performance, a wide range of evaluative devices can find their ways into a committee report, including the use of bibliometric analysis (*h*-index, etc), comparison with faculty deemed to be peers, or timelines of productivity. A report might rely on the assessment of an external reviewer to the effect that a faculty's productivity "is unparalleled among her peers," or they might present numerical evidence to support such a claim, if it can be found or created.

It seems fair to say however that qualitative assessment of faculty performance through peer review remains the cornerstone of the UC evaluation process, and that committee reports are precisely responsible to provide a qualitative assessment of the data provided, and to articulate the significance of the candidate's achievements to colleagues from other disciplines. Put another way, the current system of redundant cascading reviews (external letters, ad-hoc report, Chair's and Dean's letter, CAP report) imbues participants with trust, while a metrics database does not. Indeed, the initial <u>taskforce report</u> stated:

"Because of a concern that evaluators may over-rely on quantitative data and faculty incentives may be skewed towards achieving quantitative goals, it should be made clear to everyone that any quantitative data and norms are understood only as a starting point for evaluation, not as a direct measurement of productivity." (p. 9)

Given this, it will be important to know what specific performances measures will Opus make available, either at the individual faculty, departmental, or the broader administrative level. What role will these measures play in the promotion process or in the allocation of resources? Will members of CAP, for example, be provided with custom visualizations of faculty data (e.g., temporal representations of publication data)? Will all parties to the review process be looking at the same representations of faculty work?

At the same time, faculty might derive several benefits from the new reporting capabilities of Opus. These might provide the opportunity for faculty to develop new evidence for activities that have traditionally not been well measured in the faculty evaluation process, such as university service. As well, new data correlations may serve to reveal unfair treatment of specific groups within the University or provide faculty with new information relative to their teaching performance, their service workload, etc.

Academic analytics are however premised on the assumption that quantitative approaches are inherently superior – data are unbiased facts are after all. For American faculty, looming large in the background is the <u>British evaluation</u> <u>system of measuring academic performance</u>.⁷ The narrative of administrative rationality that typically frames academic analytics will do little to dispel the perception that systems like Opus will effect a major step in the direction of UK-style review of faculty and higher education institutions.

(d) Accountability vs. privacy

The initial <u>taskforce report</u> also stated that "policies around confidentiality and privacy should be developed. They must establish clear boundaries on what the data can be used for." (p. 8) The biggest problem entailed by the development of Opus is that neither faculty nor administration know and control what these boundaries might be.

As public employees, al information generated by faculty in the performance of their duties is potentially public record. Based on the <u>California Public Records</u> Act, <u>UC policy</u> states that

"The term 'public records' includes any writing containing information relating to the conduct of the public's business prepared, owned, used, or retained by any State or local agency regardless of physical form or characteristics."

When a Public Records Requests (PRR) is made, data and records may be excluded from the purview of the request based on a number of rules. For example, records that contains information pertaining to individuals may be excluded for privacy reasons. However, as is the case with faculty salaries, "the invasion of an individual's privacy must be balanced against the public's need for the information." Another important factor is whether the collection of data imposes an undue burden on the institution. By standardizing this data and bringing it into a single system, Opus will effectively eliminate any burden of collecting the data. But more importantly, it will eliminate the burden of *aggregating and correlating* the data. Any such correlation might become fair game for a PRR, e.g., "highest paid UC faculty with smallest number of students taught and worst students evaluations"? Or comparisons, with high levels of granularity, of the productivity (grants, publications, teaching) of faculty based on their gender/race/ethnicity?

⁷ A system which, Peter Higgs, the physicist who discovered the Higgs boson particle, <u>said</u> would prevent him from today finding employment for lack of productivity.

This is not mere speculation: 2006, the Pick-a-Prof.com Web site (now part of MyEdu.com) successfully sued the UC for access to the grade distributions (numbers of As, Bs, etc.) of every undergraduate course taught in the system. The aggregation of grades did not infringe requirements that student grades not be identifiable, and the records thus obtained provided the foundation for an online commercial service where students could choose courses based on faculty's grading patterns.⁸

It is wholly unclear what will prevent the media or the various business that are already leveraging the value of faculty data from requesting access to measures generated by Opus to derive their own statistics, aggregations, correlations, etc. It seems likely that such cases will be decided by courts, but previous rulings regarding faculty salaries and grading patterns do not bode well.

(e) Technological design vs. institutional policy

A common design strategy for information processing system is to promote interoperability with other systems, so as to lead so the "network effects" that greatly enhance the popularity of a given system. APIs (Application Programming Interfaces) provide the software mechanism that allows disparate system to interconnect and easily exchange data with one another (this is how, for example, a Facebook account can be used to log into a wide variety of systems, or how <u>Turnitin is integrated into CCLE</u>). This kind of plug-and-play makes it incredibly easy to add features to system, and such interconnections often take place at the level of technical design, rather than at the level of policy.

Early discussions of what features Opus might offer have included the addition of Turnitin so as to check for faculty plagiarism. While the feature was not implemented, the issue holds particular interest to faculty since Turnitin includes the ability to check for "self-plagiarism." Of course, faculty constantly repurpose (small and large) portions of their written output for different audiences, venues, and events. The practice becomes questionable when the repurposing is poorly identified or is used to inflate publication counts, but the ability to expose one's writing to widest possible audiences is a valuable skill, not a reprehensible practice that should be monitored by statistical algorithms. At issue is how technology can be used, whether intentionally and inadvertently, to redefine the moral contract between faculty and the University.

⁸ See California Community Colleges, Chancellor's Office, "<u>Public Records Act Requests for</u> <u>Disclosure of Faculty Aggregate Grades, Legal Advisory 06-02</u>."