

High-level value of Pure

Pure

Research Information System

Version 4.10.0

This document contains an overview of Pure's value offering to research managers and institutional managers, focusing in particular on research performance indicators. Many functionalities and concepts are not described or only described briefly.

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Pure

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Introduction

Other literature about Pure describes concrete, factual features and architectural designs. This is true for our whitepaper, the website, and the brochure, and it is true for the technical documentation.

This document, in contrast, aims to describe the strategic value of Pure for institutions' executive research managers and other managerial stakeholders. It has been structured by the following following main sections:

- ▶ Single authoritative source
- ▶ Key indicators
- ▶ Performance management and strategy-making
- ▶ Government programmes
- ▶ Online exhibition
- ▶ Other value

Executive summary

Pure is a platform for strategy making and management within the area of research. In the same time, it is a tool for individual researchers, research support offices, and managers.

When implemented at a research institution, Pure becomes a single authoritative source of quality-assured information about that institution's research affairs. Information is available at the desired level of granularity in real-time.

Pure covers all areas of an institution's research affairs: Grant applications, research Income, Projects, Publications, Researchers, Postgraduates, Funding bodies, external collaborations, etc.

This is achieved by integrating Pure with a number of local systems while in the same time capturing data in Pure by work processes that ensure quality and completeness.

Using Pure's reporting tools, it is possible to examine the institution's research affairs by different indicators; grant application and award volumes, success rates, citations and other bibliometrics, esteem indicators, innovation activities, commercialisation, and others. It is also possible to benchmark the institution and its departments against internal and external datasets.

To that, Pure is designed to create every-day value for researchers, research managers, support offices, and central managers. Providing these groups with recognised value is a key element in gaining support and acceptance from users, which again is key in achieving overall success with implementing an advanced research information system.

Further, Pure will support returns to government programmes. In the case of UK's REF exercise, Pure will support institutions in making full returns.

Finally, Pure supports exhibition to the web of all research-related content that should be made publicly available, which makes it simple to form a strategy in this area and execute it.

Single authoritative source

The most important aspect of Pure is the ability for the research institution to have reliable information about its research activities from one authoritative source at the desired level of granularity available on demand.

Pure provides that by two measures: By quality-controlled, inter-related integration with a number of IT systems on campus (e.g. Award management, Project Costing, Finance, HR, Student Administration) and by capturing additional data about Persons, Esteem, Publications, and Projects. Pure captures this data while supporting the related business processes on campus, which means that little additional effort is required.

The result is, that Pure contains high-quality inter-related data in real-time about the institution's Persons (including rich profiles, CVs, and esteem), Organisational Units, Grant applications, Grants, Projects (costing, budget, actual spending) and Publications including related full-text.

This data is available in such a granularity, that managers can have high-level summaries and analysis while retaining the option of drilling down to person- or project-level at any time.

The value of having a single, authoritative source of real-time information is considerable; not least when comparing to a situation where several heterogeneous systems must be queried separately before data then can be homogenised and aggregated off-line to present the same report or analysis.

Also of value is, that data in Pure automatically is subject to advanced access control: Users from different organisational positions have different and changing needs and responsibilities. This major problem area is addressed by access strategies in Pure that allow content to be accessed depending on users' organisational belonging and their relation to the content. Among researchers, for example, only the applicant can see his or her grant application, while the Dean of that faculty will be able to see all grant applications and awards; for running application success rate reports, for example.

Key indicators

It is possible to work with these and other performance indicators in Pure:

- ▶ Grant application success rates
- ▶ Grant application and award volumes
- ▶ External collaborations
- ▶ Research outputs statistics
- ▶ Article citation numbers
- ▶ Journal impact factors
- ▶ Innovation activities, commercialisation
- ▶ Esteem indicators
- ▶ Doctoral completions
- ▶ Post-graduate students statistics
- ▶ Research active academics numbers
- ▶ Full-text download numbers

Pure facilitates monitoring of and reporting on the developments in grant application success rates and application and award volumes over specified time periods. Also available is grant reports by funding body, funding type, per year/quarter/month, by individual academics, and by organisational units, for

example. Reports can also be normalised by FTEs for internal benchmarking. These examples are not exhaustive.

External collaborations are recorded: International, private sector, HEI, public sector, and by co-publications. Reports can be by specified time periods and organisational units, and numbers can be normalised by FTE for internal benchmarking purposes.

Research outputs numbers are available for reporting by different output types and sub-types (e.g. "Contribution to journal" > "Article" or "Book/Report" > "Commissioned report".)

There are nine main output types¹ with a total of 40 sub-types² currently available, but they are open for customisations. Outputs can also be reported by their peer-review status and by subject area classifications. Reports can be by individual researchers or organisational units and in specified time periods.

To that, bibliometric data like citations from Thomson-Reuters' Web of Knowledge and InCites or from Scopus can be in output reports: E.g. citation rankings for outputs or researchers within departments or faculties, or citations used as criteria in other output reports such as outputs where non-cited outputs are omitted. Also, journal impact factors can be part of outputs reports for performance monitoring of outputs in quality journals. This is also useful for internal analysis leading up to the REF in 2014 (UK) or in relation with other government assessment programmes.

Another research performance indicator of relevance to many universities is the volume of innovation activities and commercialisation. In Pure, activities concerning innovation and commercialisation can be identified by use of formal and validated classifications, which then can provide reports on volumes and growth in such activities and the funding they are based on. The outcome of such activities can for example be measured by the number of patents, issued licenses, products, or spin-off businesses.

The same is true for esteem indicators. Pure will hold information about national and international awards and prizes, presentations of keynote addresses at international events, editorial and refereeing work, elections for learned societies, juried selections of works for exhibition/performance/recording/screening, and reviews of artworks, for example. Esteem can be a dynamic part of researchers' personal profiles and CVs; also online.

Doctoral completions are also in Pure: PhDs and equivalent research doctorates and research master degrees are recorded and related to supervisors. This allows reporting on volumes and growth of such doctorates by department, as well as reporting on completion rates normalised by FTEs.

Developments in the numbers of post-graduate student can be studied by organisational unit (normalised by FTEs), internal units can be compared, and reports can be on specific time periods.

Further, Basic numbers of research active academics are available from Pure in various ways, for example by association to units of assessment (UK) or by other local or national subject area taxonomies or other classifications. This allows reporting on the development of percentages between research active and non-active academics including cross-departmental comparisons normalised by FTE or grant volumes, for example.

Finally, full text download numbers are available in Pure. This is a relatively new metric currently gaining momentum due to the increasing availability of full-text papers online.

¹ "Contribution to journal", "Chapter in Book/Report/Conference proceeding", "Book/Report", "Contribution to specialist publication", "Working paper", "Contribution to conference", "Non-textual form", "Thesis", and "Patent".

² Please refer to the data model documentation for a full overview of main content types and sub content types.

Performance management and strategy-making

Any kind of management relies on the availability of correct and transparent information. The same is true for strategy-making and for monitoring its results. Pure supports both in several ways:

A recently published report from Imperial College London and Elsevier³ investigates among other topics institutions' development of strategy and setting of strategic objectives. 21 institutions were interviewed (the report's appendix A), and the most frequently made requirements for research information tools for this purpose (section 8.2, p. 21) were:⁴

- ▶ Holistic view of research information
- ▶ Access at degrees of granularity
- ▶ External benchmarking

The report describes the "silo" problem of institutional information architecture; information kept in separate business systems because of departmentalised business process planning, for example, which makes it difficult to access data across systems and departments.

As mentioned earlier, information from other business systems and data captured in Pure is joined up and inter-related. This is done according to CERIF principles and together these efforts results in a dataset, which provides exactly the holistic view of the institutions' research affairs that is requested in the report: Examining research projects chronologically is possible; from grant applications to the outcomes' citations metrics, for example. At the same time it is possible to view the financial records of an individual project or to compare the research income from a department over a number of years. These are just examples.

Generally, Pure makes its dataset available to managers and strategy-makers by its reporting facilities and by real-time dashboards, both of which allow users to either query data freely by self-defined criteria or to run pre-defined analyses that model data against the most common performance indicators. The option to drill-down at different levels of granularity is always available, as it was also mentioned earlier. This is because data is actually available at the level of individual grants, researchers or publications, etc.

The silos - the different business systems - will still be there, but the problems introduced to research managers and research strategy-makers by such an infrastructure are resolved.

In addition, benchmarking is possible in Pure⁵ against both internal and external factors, which is an other main value proposition: The ability to know how the institution, its organisational units, and its researchers perform compared to each other and to peers within specific areas. According to the ICL report, most institutions desire national benchmarking. Different national datasets are available in different countries, and certain international datasets are available too; award data from the European FP7 and FP6 programmes, for example. Also private datasets can be used for benchmarking within Pure - institutions using Pure could exchange data for benchmarking purposes based on mutual non-disclosure agreements, for example.

³ John Green, Ian McArdle, Scott Rutherford, Thomas Turner, Joy van Baren, Nick Fowler, Phile Govaert, Niels Weertman 2010, 'Research Information Management'.

⁴ Two more requirements were made here, user-friendliness and flexibility, but they are not taken up here as they do not relate directly to management and strategy-making

⁵ Please note, that certain benchmarking functionality only will be released in 2012

Government programmes

Also of value is Pure's ability to serve both as an information platform and as an analytic tool when preparing and making returns to government programmes such as the BFI project in Denmark, the FRIS project in Belgium, or the Exzellenz Initiativ in Germany.

In the case of UK's Research Excellence Framework, the REF, Pure's UK datamodel includes each REF-specific content type, which enables institutions to prepare, test, and make full returns:

Assessment Outputs, Assessment Persons, Impact statement, and Assessment Environment can all be associated with the desired Unit of Assessment directly in Pure, and Assessment Environment includes Research Income and Student Data as currently specified by HEFCE.

Further, the necessary workflows and functionalities are available in Pure to process this data correctly: REF administrators in Pure can define Assessment Persons as "Eligible" or "Excluded", they can make exemptions under the "Early career status" and "Mitigating circumstances" definitions, and they can select the four outputs from each Assessment Person's portfolio. Confidentiality within the system has been carefully considered, REF-specific workflows are available for internal deliberations to be processed by multiple authorities if desired, and REF-specific reports⁶ and other measures provide comprehensive process quality assurance.

In addition, Pure can be used to create return scenarios by use of predicted grades from 0 to 4 stars and by different allocations of scientist to different Units of Assessment; e.g. moving 10 out of 40 scientists from "Biology" to "Life sciences" because the 30 is considered enough for "Biology". Our aim here is to offer UK Pure-owners easier access to preliminary REF assessments at earlier stages with less effort compared to the 2008 RAE.

Finally, a well-implemented Pure solution will likely introduce savings on the 2014 return compared to amounts spent making the RAE return in 2008: In the cases we have knowledge about, it is likely that savings on the 2014 return alone can justify the investment in Pure.⁷ This is as much because of the effort during the implementation of Pure to integrate, import, and clean up data, as it is because of Pure as a tool. The value of the investment with respect to the REF is therefore harvested equally from Pure itself and from the implementation: Implementing Pure is a process that in itself may be a good step towards a successful return.

Online exhibition

Owners can specify central rules and workflows by which publication metadata, researcher profiles, CVs, grants, projects, organisational units, press articles, and other content is made available on institutions' different webpages, on PurePortal (Pure's built-in public portal) or in both places. There are examples of universities' entire research portfolios being available online by means of Pure, but Pure is also used for exhibiting only selected information; e.g. "most downloaded full-text", for example.⁸

Full-text can be made available online, too; either by integration with existing repositories and subject to existing repository policies or independently thereof. Pure is fully able to take the role of an institutional repository if so desired.

⁶ For example a report identifying all research active staff that is not yet associated with a Unit of Assessment (UoA)

⁷ Based on the assumption that costs-inducing factors will be the same for the 2014 REF as for the 2008 RAE, and based on total Pure project-costs within the current norm for UK projects. We are happy to provide a specific quote for the purpose of a more accurate calculation.

⁸ Please see <http://vbn.dk/en>

Web guests can search and browse content from Pure by central- or subject-area taxonomies, and they can save their results or subscribe to future releases by the same criteria.

Pure also makes it possible to follow up on online publishing initiatives. The effect of an initiative to boost the dissemination of young scientists' research papers by promoting a special download option, for example, can be monitored by quarterly or annual reports and benchmarked against previous years.

Having such tools for rule-based online exhibition in combination with a single, authoritative, quality-assured data-source eliminates the distance between making a university-wide online publishing strategy for research information and executing it.

In our experience, this distance can exist because of different web systems, different heterogeneous databases, and different business processes and web publishing policies within departments and faculties.⁹

There are documented advantages for citations and downloads from making full-text available online.¹⁰ To that, we will argue that there are advantages from online exhibition of additional research-related information such as researcher profiles, grants- and projects information, information about external collaborations (international, private sector), or networks diagrams.¹¹ Increased visibility for potential research collaborators is one advantage from such additional online exhibition, more frequent press coverage is another.

Online dissemination capabilities have been added to Pure over the years to make it easier and faster for Pure owners to strategise the institution's online dissemination effort and to monitor and harvest the results.

Other value

Pure-owners are members of User Groups, and they can share costs. Institutions will always have many individual requirements, which is the reason for the flexibility of Pure in so many areas. It is however also a fact, that institutions often have exactly the same requirements within certain areas. The application architecture of Pure was designed with that in mind, allowing groups of customers to make common requirements and to share the costs. Two or more institutions can make shared requirements, and the Pure User Groups provide a practical forum for discussing and coordinating such cost-sharing ventures.

Post-implementation success rates with Pure are high. We know from experience, that the biggest challenge for institutions isn't running the implementation project. It is gaining momentum within the organisation after implementation; achieving the desired throughput of data, engaging researchers, research managers and institutional managers positively, and securing academics' user acceptance.

Ingredients in the successful handling of this challenge can be clear and up-dated institutional policies, support from top-level managers, a well-planned roll-out, good availability of information to all levels, sufficient access to support in the first couple of months, etc.

We support institutions' post-implementation successes in several ways: We make our experience and network available. This includes experience and network since 2002 from some 60 universities and other

⁹ Pure will not facilitate a university-wide online strategy at the cost of local online publishing policies at departments and institutes, it will support both

¹⁰ Open Access advantages have been investigated, two studies are: J. Kurtz, M, Eichhorn, G, Accomazzi, A, Grant, C, Demleitner, M, Henneken, E & S. Murray, S 2005, 'The Effect of Use and Access on Citations', *Inform Process Manag.* and S. Metcalfe, T & Robertson, C 2006, 'The Citation Impact of Digital Preprint Archives for Solar Physics Papers', *Solar Phys.* Further, we find this bibliography by A. Ben Wagner useful: <http://www.istl.org/10-winter/article2.html>.

¹¹ Please see [http://vbn.aau.dk/en/persons/gert-froelund-pedersen\(a49c73ee-aed0-448c-8a92-792c9ee12a9e\).html](http://vbn.aau.dk/en/persons/gert-froelund-pedersen(a49c73ee-aed0-448c-8a92-792c9ee12a9e).html) - please click "View graph of relations", choose "Latest year" to simplify

institutions, several of which are among the world's largest. We also design the product with this particular challenge in mind. The user-interface of Pure, for example, is carefully designed to make tasks immediately understandable and easy to carry out, and the help system goes beyond the scope of functionality to include explanations for each field - our studies has shown that this is as much a source of questions as functionality itself. Finally, and perhaps a simple thing: We stay in touch after implementation projects, both formally via the User Group meetings, for example, but also informally with individual institutions. We consider existing customers a responsibility but also a source of valuable information and experience.