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JISCArchitectus (<u>A</u>rchitect<u>u</u>rally <u>U</u>seful <u>S</u>cholarly resource)

Content Programme 2011 – 2013

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Synopsis

Architectus (**Architect**urally **U**seful **S**cholarly) Resource was a diverse and innovative primary source digitisation and generic OER initiative featuring contemporary (post-1980s) architectural designs and structural plans and drawings. There is currently a gap in e-content provision of very accurate and high resolution examples of these, suitably licensed under Creative Commons, readily accessible for scholarly re-use and re-purposing. This is frequently due to commercial sensitivities, IPR and protective practices. After all, most significant contemporary developments use private architectural practices from concept to completion.

[100 WORDS]

Introduction

Birmingham City University, under the *eContent 2011-13 Programme,* was excited to receive funding to develop innovative nationally recognised Open Educational Resources (OERs) for teaching, learning and research in architecture and the built environment.

This l collaboration and extensive partnership sought to create both qualitative re-usable © in-perpetuity digital assets but accompanying learning materials including suggested learning activities, good practice tools and video exemplars of resources being used in various discursive and applied learning activities in an HE / adult education environment. This was really the main learning objective of the project, to source and make available on an Open Educational Resource platform modern architectural designs, drawings and related material from 'real' contemporary building projects under Creative Commons BY-NC-SA3.0 Licenses**.**.

The project was led by CELT (Centre for Enhancement of Learning & Teaching) at Birmingham City University. Partners include the Birmingham Institute of Art & Design School of Architecture (part of Birmingham City University), University of the West of England, Birmingham & Five Counties Architectural Association Trust (RIBA West Midlands), Council of Heads of Built Environment Departments (CHOBE) and participating commercial architectural practices (mostly UK based).

Context and Challenges

Context

I work in Technology Enhanced Learning and Teaching, part of the Centre for Enhancement of Learning and Teaching. We 'teach the teachers' so to speak at Birmingham City University. Colleagues from Built Environment and Architecture identified the lack of decent quality primary sourced drawings and plans of

'real building projects' with accurate measurements, scales and other details for re-use and re-purposing in teaching, learning and research. The options were just not there. So, a brief investigation followed.

Even rudimentary research confirmed this too. The National Archives hold a diverse range of plans and drawings of buildings and civil engineering going back to the 17th century but only forward winding to 1983 **(1)**. http://www.nationalarchives.gov.uk/records/research-guides/architectural-drawings.htm#18841 .

The lack of contemporary digital open educational resources for architecture and built environment students was surprising considering the 2d and 3d computer aided design tools extensively used in this sector. It is also a global phenomenon it seems, **Ball and Shelburne 2004**, made these telling comments…

In some respects, study collections of architectural drawings require librarians and visual resources curators to take unconventional approaches to collection development and policy making. Collections are usually restricted to a very select group on users, which runs contrary to most library missions to make collections freely available to the public. Study collections usually are not developed by a librarian or curator, and practical concerns limit the amount of input they have in the acquisition of drawing sets. Despite these issues, the outcomes are well worth the trouble to catalogue, house, and maintain study collections of architectural drawings. Ball, H & Shelburne, B **(2)**

The importance of ready access to practice drawings in pedagogy is certainly international as these educational practitioners from University of Washington, Seattle explain:

"2. Diagrams in architecture education and practice
Many books for architecture students focus on drawing methods and techniques. Lockard's Design Drawing Experiences proposes that the ability to "diagram" an architectural context depends on designers' knowledge of issues such as sun, wind, vegetation, traffic, and surroundings. He argues that diagramming can be used to explore variations of design problems
and that it allows us to "see, comprehend and respond" to more visual information than we can remember from verbal notes (Lockard 1973)".

Ellen Yi-Luen Do, Ellen & Gross, Mark D. 2001, 'Thinking with diagrams in architectural design,'
Artificial Intelligence Review vol.15, p. 139, 2001
Even the Library of Congress appear to rely on older, mostly public buildings, for examples of digitised resources of use to teachers and students alike Stacie Moats, 2011 Blog **(3)**
http://blogs.loc.gov/teachers/2011/12/teaching-with-architectural-drawings-and-photographs/

Royal Institute of British Architects (RIBA) references several online resources but no single OER. Indeed some require payment for high resolution imagery.
http://www.architecture.com/LibraryDrawingsAndPhotographs/Educationprogrammes/Learningresources/OnlineResources.aspx **RIBA (4)**.

Indeed, half way through this very project a conference entitled 'Drawing on All Resources' highlighted the need for OERs in the creative industries that are cross-collaborative, including Architecture **(5)**.
http://networksadm.blogspot.co.uk/p/drawing-on-all-resources.html

So - the need ?

- Dearth of learning objects with exemplars of contemporary building project design and construction drawings, plans, elevations and related materials – covering the chronological timeline from concept to completion and 'real use'. Basically the five main stages of RIBA's Plan of Work **(5)**.
- http://www.pedr.co.uk/Guide/StudentRIBAPlan . A standard both architects and built environment professionals and trades comply with for larger construction projects.

- Pedagogic need for detailed drawings for re-use and re-purposing in student discursive and applied learning activities across disciplines including surveying, measurements, construction, real estate and architectural studies.

- Lack of exemplars freely available on the web for anyone interested in contemporary architectural design.

Challenge

Clearly, there were going to be several challenges that the project and Jisc were both aware of from the get go. We needed drawings! We had secured some influential partners and some content providing Practices. Plus the fascinating Birmingham and Five Counties Architectural Association Trust archives; holdings based at RIBA West Midlands. No content was in the public or academic domains. The challenge was to gain the co-operation, trust, time and 'the primary assets' from a diverse commercial sector with inevitable levels of protectionism, secrecy and commercial confidentiality.

Key challenges included persuading Practices to allow their original commercial work to be made available on the Internet under Creative Commons licensing and getting them to understand how participation would ultimately enhance the student experience and educational outcomes for the next generation of professionals. We needed to get them to realise the benefit of investing just a little time on this. To compound the above, we also knew we were in the grip of a global depression that had hit the construction industry deeply in the UK. This sector is not in the public domain. The environment we were demanding content from is mostly very private, full of commercial (intellectual property) challenges.

The world of the busy and highly competitive architectural practice was being broached by a Jisc funded HE project. This was virtually unheard of. Altruism, pedagogy and egalitarian values are not something usually associated with the sector.

Another challenge was creating the metadata itself and adapting a standard to match. The repository we were going to use included the [Learning Object Metadata](#) (LOM) template. This seemed most appropriate to try and adapt, incorporating the RIBA Plan of Work Main Stage headings if possible. Nobody had really done this before.

After much consultation, including other Jisc projects, we went ahead with this approach but it has never really been satisfactory. It relies on using multiple Description fields and Contributor fields. The sets of metadata created for Practices and Archives are in Appendix 1.

Also, the catalogue data we could create for the Archives was obviously slightly different than for content sourced from the commercial architectural practices. We included the original analogue Drawer by Drawer alpha-numeric index for the archive at RIBA West Midlands.

Arranging and accessing content and filters on the web portal has also been a challenge. The drawings have been split into two easily search able collections – Architectus Practices and Architectus Archives. To ensure location, maps and street view was enabled for assets, Geo-reference tags were also needed. An example of a completed set is above for the John Madin Collection, Architectus Archives.

So far as the project team is concerned, it was perhaps tedious but worthwhile to add comprehensive meta tags to each single asset. The international metadata framework standard known as Learning Object Metadata (LOM) was applied to every single asset. This means each asset was effectively 'cooked' in some way – making each asset (e.g. drawing) a learning object in its own right.

Culture and Practice

Culture

From a project management and learning technologist perspective, I was not aware of the many historical, technical, professional and perhaps cultural differences between the different disciplines across the Built Environment and Architecture. After all, building design and construction, especially for larger projects, can involve architects, architectural technologists, civil engineers, structural engineers, building engineers, quantity surveyors, land surveyors, interior designers, construction managers, health and safety regulators and numerous building contractors and trades. Oh, and let us not forget the Practices clients themselves.

These factors were always going to also be an issue with developing appropriate learning content around the raw 'uncooked' assets from the Practices. It is worth summarising the main ones here:

- Different professional bodies
- Different academic bodies
- Different professional and trade terminology
- Different professional and compliance standards
- Different curriculums and learning objectives

Evidence of this could be seen even within the lead project institution, Birmingham City University. The Birmingham School of the Built Environment School and Birmingham School of Architecture are each entities within different Faculties. The latter within Art and Design as it is considered part of the creative industries. This has been a particular cultural difficulty.

Practice – the 'pester' factor

The initial scoping exercise proved the above challenges and disparate cultures were all too real. It was frequently difficult to obtain all the accurate plans for a project in every main category of RIBA's Plan of Work. The lack of consistency in adhering to some non-legally enforceable professional protocols, compounded by arbitrary local archiving/record keeping, meant the scoping team encountered some early problems.

So, after early pilot testing the Project Steering Group, with input from all related sectors, were happy to hybridise the asset categories to incorporate key elements of the RIBA's plan of work plus others. This was to ensure we had the whole 'picture.' RIBA Plan of Work is a structure and standard employed by architects working on building projects. Follows a kind of life cycle from concept to completion and use of a building / development in the UK. We also tried to simplify the other data we requested and provide multiple options for physically providing digital and data transfer e.g. DVDs (personalised by Practice name), Dropbox accounts and access to the new university teaching and learning repository system as contributors.

The revised eight asset categories were as follows:

Context (Preparation and Brief) *	Key Features
Concept *	Completion * (including Construction) *
Design *	Interior/Fit Out (including Construction) *
Detail (including technical) *	Appendices

* Highlighted text indicates categories corresponding to RIBA Plan of Work 2013.

Surprisingly, often it was a lack of time and other more commercially imperative priorities which stalled participation. Few Practices wanted or 'had time' to deal with our initial requests for data and content. We were simply not seen as a priority despite our researchers heavy 'pestering.'

We did advertise the project on professional social network sites e.g. LinkedIn and in conventional journals like *Architects Journal.*

If we had paid to gain access and secure legal copies of their content, some Practices would have dedicated more time and co-operation. Other practices wanted to see if the finished OER resource would be useful before thinking of participating.

The project blog certainly helped to keep all partners and interested parties informed of progress

Partnership and Stakeholder Management

Partnership
The whole project was a partnership. Consisting of formal project partners, the Project team, contributors staff and students for user experience testing of the OER. Enthusiastic stakeholder partners like CHOBE and UWE got on board straight away.

Architectural Practices and Archives – a list of contributors as of July 2013, and growing:

Aedas
Projects:
Darwen Aldridge Community Academy, Lancashire
Allfred Hall Monaghan Morris
Projects:
Angel Building, London
Westminster Academy, London
Alma-nac
Projects:
Gingerbread House, London
Slim House, Norwood
Associated Architects
Projects:
Birmingham Institute of Art & Design, Birmingham
Seacole, Edgbaston
Birmingham & 5 Counties Architectural Assoc. Trust
Collections:
Birmingham School of Architecture – Student Projects Pre 1939, Birmingham School of Architecture – Student Projects Post 1939, Architectural Practices – 1930 to 1960, John Madin Design Group, Measured Work by Architects 1932-37 Birmingham and West Midlands, Student Competition Entries, West Midlands Architectural Practices – Post 1960
Gareth Hoskins
Projects:
Birmingham Institute of Art & Design, Birmingham
Seacole, Edgbaston
Glancy Nicholls
Projects:

Good Shepherd Primary School, Coventry *Sheldon Health Care Centre, Birmingham*
<u>Khoury Architects</u> Projects: *Long Meadow, Diss, Norfolk* *Uniline Safety Systems Headquarters, Worcestershire*
<u>MAKE</u> Projects: *City of London Information Centre, London* *The Cube, Birmingham*
<u>Penoyre and Prasad</u> Projects: *Crawley Library, West Sussex* *Richard Desmond Children's Eye Centre, London* *The Treehouse Trust (Ambitious About Autism), London*
<u>Project Orange</u> Projects: *Cemetery Road, Sheffield* *Project Orange Studio, London* *266 Glossop Road, Sheffield*
<u>Sutherland Hussey</u> Projects: *Edinburgh Sculpture Workshop, Edinburgh*
<u>The Space Studio</u> Projects: *School of Architecture, Birmingham* *Vinappris, Fort Dunlop, Birmingham*

Below are examples of experiences with Contributors in securing content:

Not all projects have provided assets for each category, but most have done their best to provide for the majority. In some cases a design is just the interior design, in which case the interior & fit out becomes the same as completion. So I've simply added both categories in the description field (not the title because it was too lengthy! In the title it's just "completion").

The process of chasing contributors was not really helped by social media helped by
I've submitted The Space Studio - Vinappris to the next stage in Explor. The information form is in the red file "returned forms" in CELT under the number 143.

The sectors are: Leisure, Arts & Culture
If you think that it applies to any others just say. It's not what is traditionally thought of as mixed-use so not that. It's a sky tv channel that was filmed with a wine bar in the background. Pretty unusual use, figured tv channel comes under arts and culture maybe? There are 48 files for this project.

Building partners to act as user experience testers and champions is very much on-going.

Stakeholder Management

The project was overseen by a Project Steering Group, with the academic / pedagogic input in the form of a sub-group called the Pedagogic Editorial Board to help 'cook these assets' into learning objects and curriculum embed. 'Cooking' was a metaphor Jisc used at the time to symbolise a resource with value added components to benefit learners, teachers and researchers. This could be comprehensive meta tagging, suggested learning activities or even exercises using the resource to achieve particular learning objectives.

A Project Team oversaw the project including post-graduate students employed as project researchers from Built Environment and Architecture. Key figures included:

Project Steering Group
Chair - Professor Stuart Brand (Director of the Learning Experience, Centre for Enhancement of Learning & Teaching)
Project Team
Bev Cole (Project Manager)
Claire Goldthorp (Architecture, MArch); Helen Jones (Built Environment, MSc Construction Management); Thomas Cotton (Architecture, MArch) - Researchers
Beth Delwiche (Professional Librarian, Digital Library Officer), Nikki Griffin (Professional Librarian, Digital Library Officer), Philip Sidaway (Digitisation Technician) - Digitisation & Metadata Coordinators

Pedagogic Editorial Board
PEB Lead - Professor Kevin Singh   (Head of Birmingham School of Architecture)

Sifting, Creating and Releasing

Selecting (Workflow)

Not all content from contributors was of relevance. If anything we received too much content from them at times. There were often similar drawings or duplicates. Other content wasn't of a high enough resolution or definition and the content provider had no better graded version. The process involved researchers, digitisation and meta tagging coordinators and academics under the umbrella of the Pedagogic Editorial Board. We used a cloud based service called Mini-Groups to cut out internal security issues when interacting with stakeholders and contributors. This is a pretty useful and cheap web-based project management tool. Example right:
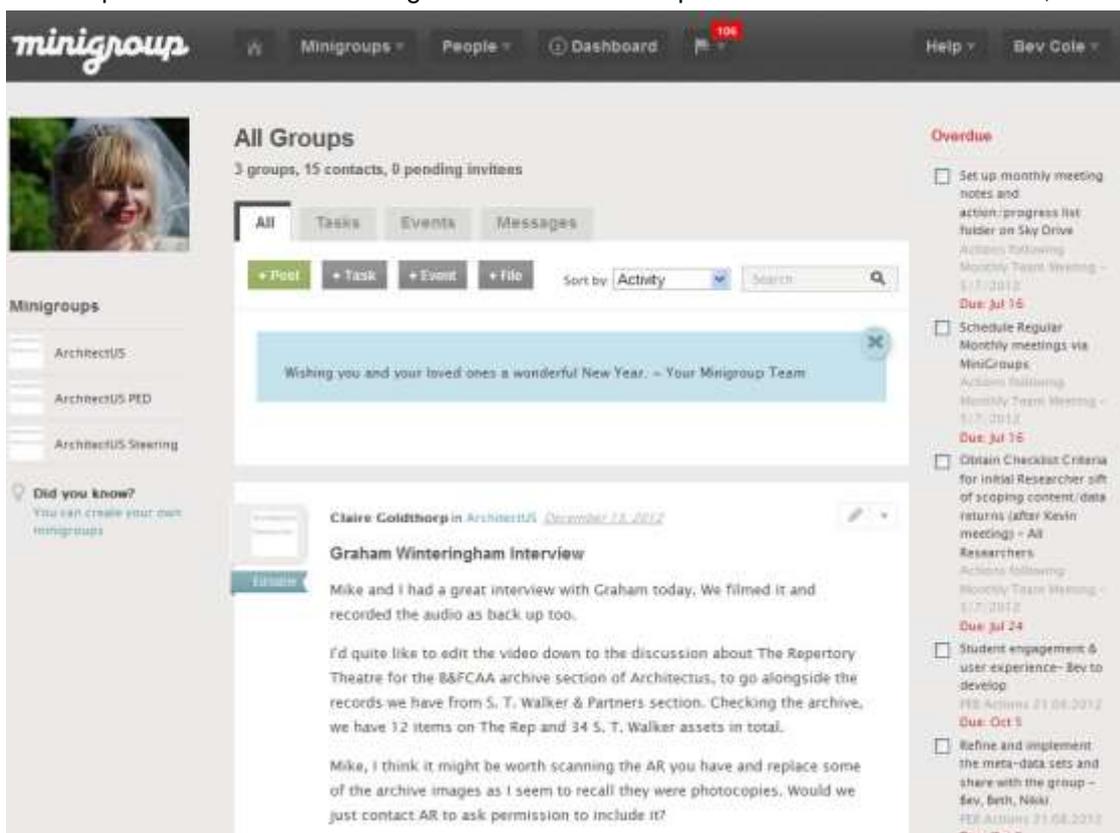
The workflow is illustrated below:
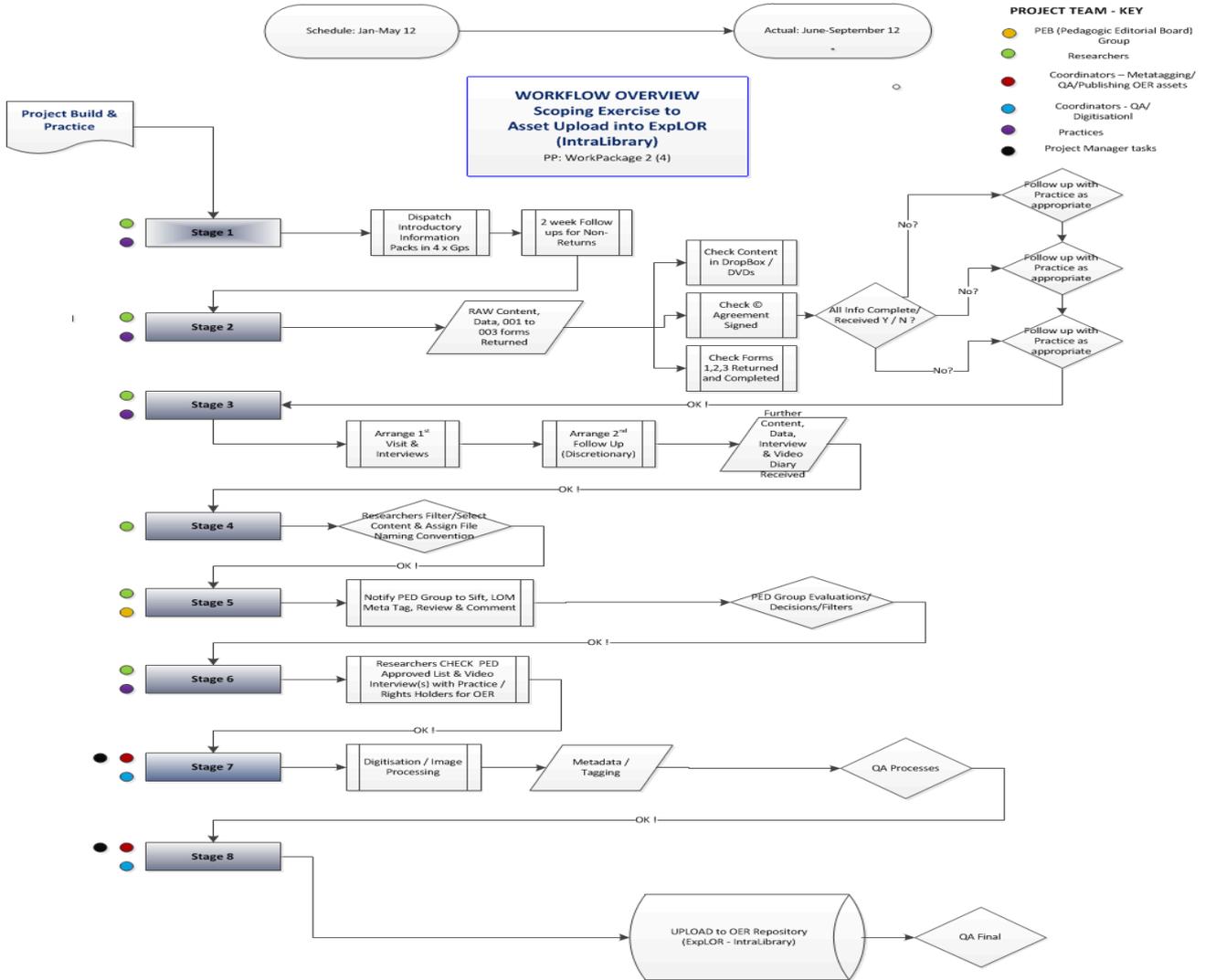
Creating
Once selected following the sifting process individual assets were 'half cooked' (if you like) with added value LOM metadata (Learning Object Metadata) on the ExpLOR repository system (IntraLibrary platform) and project open web portal: http://architectus.bcu.ac.uk   . Plus any digital editing to sharpen images and re-size.

Releasing
All material has been released under a **Creative Commons BY-NC-SA3.0 License**. The project called it a 'Partner' agreement. The use of this terminology was intended to help foster a spirit of co-operation and common purpose with

content providers, from different cultural and business compasses.

Example Drawings

This is the bread and butter of the collection – high resolution, high quality digital design and construction
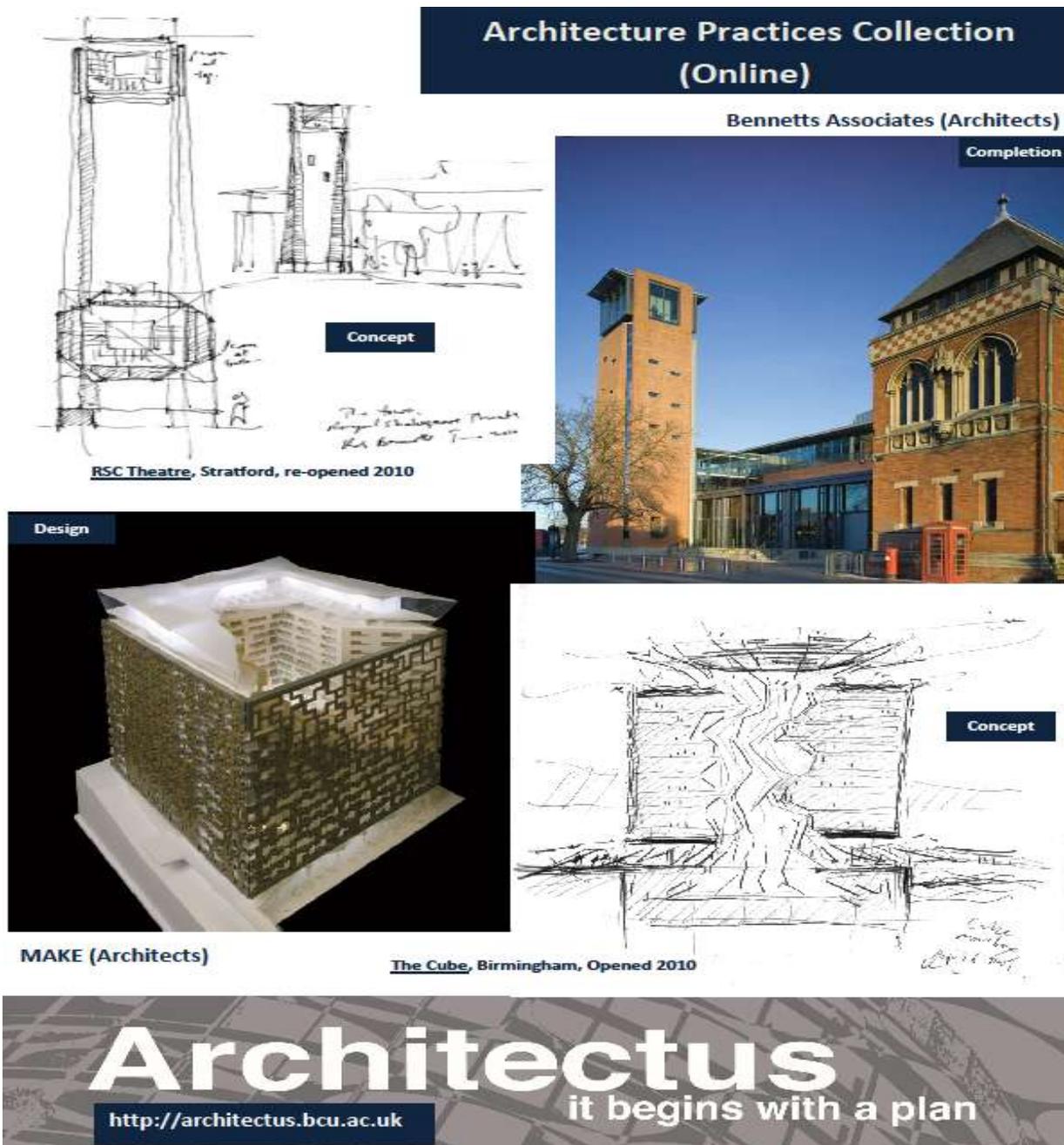
drawings, elevations and renderings. We had hoped to include 3d renderings but this proved difficult because most Architecture Practices output their 3d designs in 2d formats anyway. To give a flavour of some of this rich OER content examples reproduced for large poster project publicity gives an idea of the range of content indicating Architecture Practice or Archive Sub-Collection name, name of the Building Project, RIBA Stage (e.g. Design) and completion year:

Architecture Practices Collection (Online)

Detail

Alma-nac (Architects)
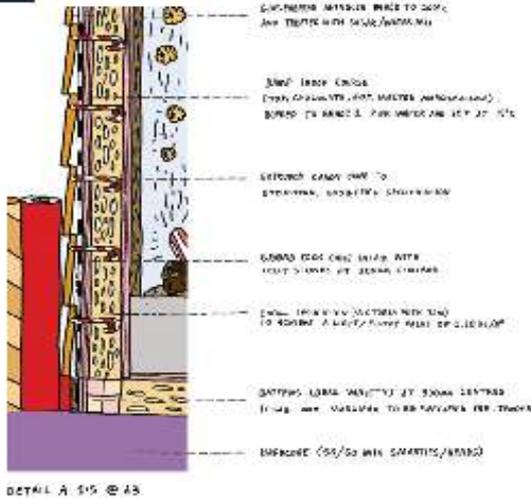
Completion

The Gingerbread House, London,
In aid of Great Ormond Street Hospital, Opened 2011

Design

Concept

Allford Hall Monaghan Morris (Architects)
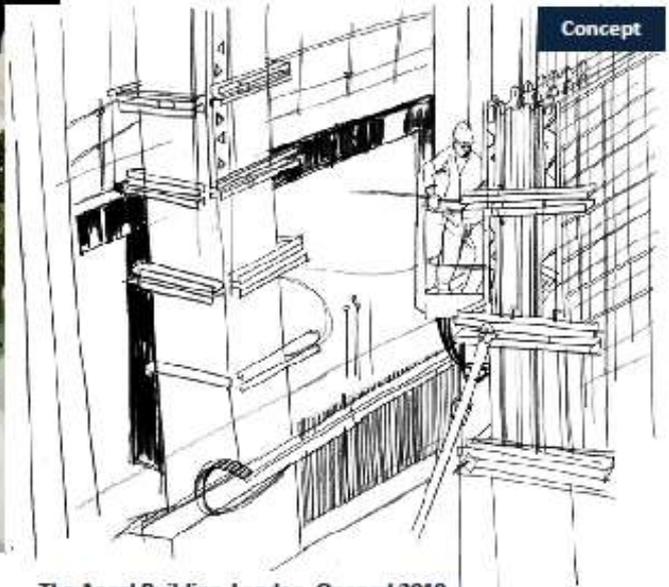
The Angel Building, London, Opened 2010

Architectus

it begins with a plan

http://architectus.bcu.ac.uk

B5CAAT Archives Collection (Online)

Pebble Mill, Birmingham, Opened 1971

John Madin
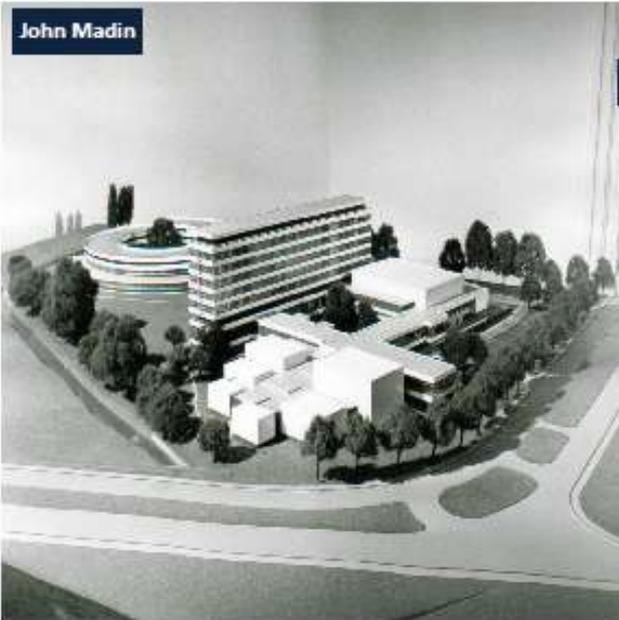
Birmingham Post and Mail, Birmingham, Opened 1964

John Madin

John Madin

John Madin

Redditch Library, Opened 1976

John Madin
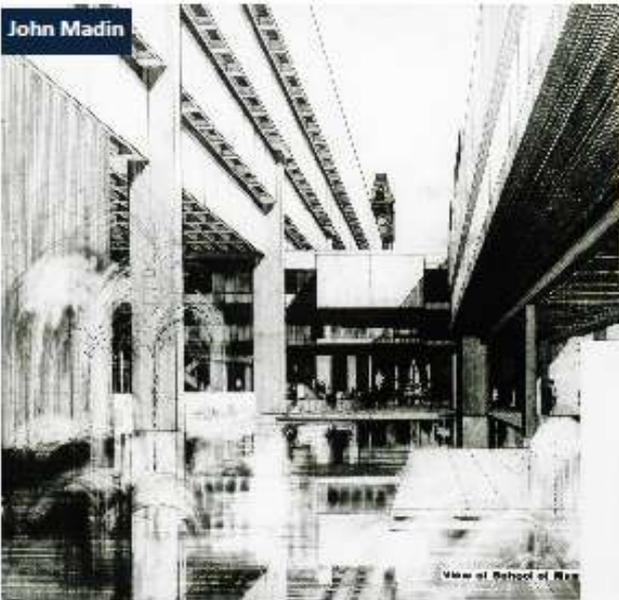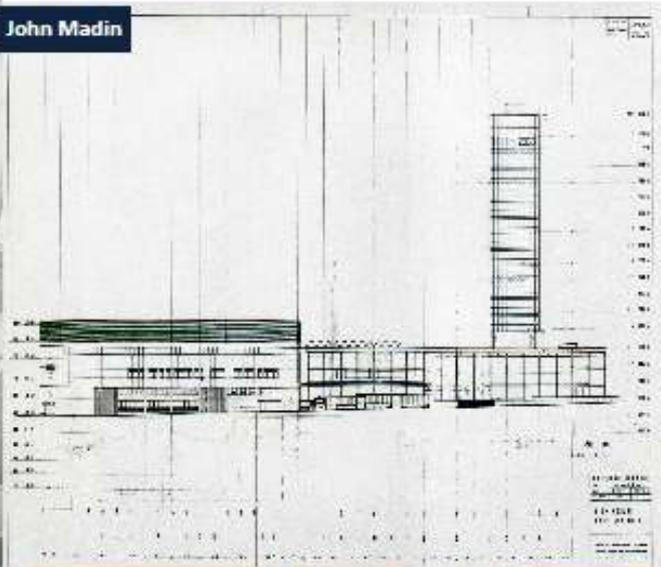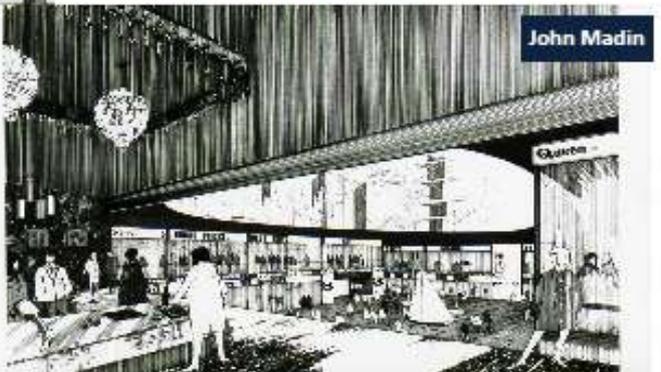
Central Library, Birmingham, Opened 1974 (above)

West Bromwich Shopping Centre, Opened 1971 (right)

Architectus
it begins with a plan

http://architectus.bcu.ac.uk

Discoverability

The main OER is available on a dedicated web portal http://architectus.bcu.ac.uk .Videos supplement this OER resource and there is a dedicated video library. This includes interviews with project collaborators, educational practitioners and user experience testers (staff and students).

Discoverability wise, the portal will be added to various directories of repositories e.g. Open DOAR. RIBA Education and Learning and Jisc. Content. Thanks to the back end system of Architectus, IntraLibrary, harvesting tools such as The Open Archives Initiative Protocol for Metadata Harvesting **(OAI-PMH)** and the registering of the web portal with popular search engines means each asset is separately discoverable. Signposting sites will also include the web portal e.g. Architecture Hub and Xpert .

There will also be a library of learning objects / packages where content has been 'cooked' using the new web content packaging tool MyCAT .

This includes tutor and student interviews and face-to-face, discursive and applied learning activities and case studies. There are interactive elements such as quizzies. Embedding the OER Into the curriculum was a project work package and major output.

These packages are generic and cover various topics, with recommended learning outcomes, from *Architecture Modelling* to *Scales and Measurements in Quantity Surveying.* These learning packages are accessible through any browser, but can also be exported as IMS packages. These learning objects are primarily intended to showcase how this OER can be re-used and re-purposed in various teaching and learning curricula and scenarios – face-to-face and online/distance learning.

These packages are also being uploaded onto Jorum, independent of a specific catalogue entry for the web portal itself.

Dissemination

This involves a strategy of public, academic and industry based activities. Press Releases, coordinated by Birmingham City University and Jisc will be supplemented with a series of launch events and presentations. Three notable launch events are as follows:

- **Innovation in Built Environment**
  University of Westminster
  http://ibee-conference.com
  29th/30th May 2013
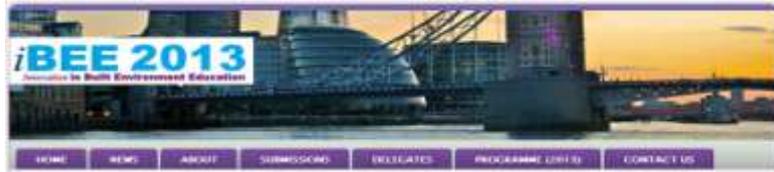
This event brings together all 46 Built Environment departments from across the UK and engages with the other professional sectors such as property, construction, planning and surveying.

- **RIBA West Midlands Launch and Love Architecture Festival,**
  Birmingham & Midland Institute
  http://www.lovearchitecture.org/
  27th June 2013

This is the main launch event. RIBA London are represented at the West Midlands launch along with members, educators and associates. . It is expected a RIBA national event will feature this project in the future. This has the advantage of providing the project with an opportunity to coincide this event with this wider annual RIBA national festival and engage with professional and educational practitioners first. Memebrs of the Project Steering Group felt this was especially important.

There will be follow up dissemination online e.g. through the Friends of School of Architecture network (Linked In), RIBA national web site and other networks such as other Linked In Groups e.g. RIBA and Midlands Architecture Network and Facebook e.g. Architecture Student Network.

- **Friends of School of Architecture Launch,**
  Birmingham School of Architecture
  http://www.linkedin.com/groups?home=&gid=4406805&trk=anet_ug_hm
  October 2013 (Date TBC)

There will be a series of events in this growing network of current educational practitioners, alumni and others. They are also collaborating using Linked In.

A full peer reviewed article, co-authored by academics and studnets will be published in the Architects Journal later in the year.

 http://jiscarchitectus.wordpress.com/

Online dissemination will continue through Twitter and the project Blog throughout 2013 and onwards. Email alerts will be available to anyone who wishes to register on the web portal site too.

Impact

The impact of the OER is growing but can only be truly measured over a longer time frame.
Jim Sloane, Senior Lecturer in Architecture (Technology module – undergraduate studies) has already

evidenced first hand the value of using Architectus sourced drawings, as have students. The report video includes interviews demonstrating the potential high impact this resource will have in teaching and learning. This includes a case study of a Model Making Workshop for 70 plus undergraduate BSc Architecture students engaged in Year 1 Technology module (T4-2) employing some of these drawings for the first time within the curriculum. This provides some initial evidence of the usefulness this OER from the get go e.g. BArch undergraduate Model Making Workshop (T4-2 Technology module). It is anticipated impact of the OER will be measured through online feedback, comments and Google analytical data. Measuring the impact of the OER in the curriculum we have found more of a challenge so far. Clearly, learning outcomes related to the use of the OER is measurable and is also built into each online learning package. However, higher attainment through summative assessment data will take time to gather and evaluate. The project has decided to use both quantitative and qualitative methods – including a key role for student mentors, an

existing Birmingham City University scheme. With kit supplied like mini and full iPads - student stories, peer-to-peer feedback and interviews by post graduate student mentors at the *School of Architecture* at Birmingham City University and counterparts at UWE's *Property and Construction* department will better inform the Project Manager who will help further refine the OER through a CELT – supported sustainable future.

Traditionally, students in both Architecture and built Environment discipline require 2d and 3d software such as AutoDesk (often proprietary) or analogue printers and plotters to output detailed drawings of building and design plans.

This online OER should provide a readily accessible alternative with a whole new range of contemporary 'real time' case studies featuring original design and construction drawings and plans for the lifecycle of substantive exemplars of contemporary architecture.

Impact data, recommendations and changes will be gathered and available over the next academic year (and beyond). This will be disseminated as appropriate, including to all project partners e.g. CHOBE over a 12 month period initially. This data and subsequent actions will also be available via the web portal

Embedding and Sustainability

Embedding

We did experience some issues with such an ambitious project, namely time. In hindsight we would not have expanded the original outcome of 2000 assets upwards to 5000 considering we were sourcing most of the content from the commercial sector with no real leverage or incentive, other than altruism and good will perhaps, to participate.

The Jisc Programme Manager, Paola, was very wise in suggesting the work package timescales were synchronised in terms of developing the OER portal early doors. However, we could only prioritise for digitising and testing resources from the RIBA Archives. Unfortunately, this was not something we could do for Practice content. We had to rely on what 'came in' first. Certainly for the pilot and user experience testing within a curriculum programme.

This pilot was the T4 Technology module of the BSc Architecture degree course. The Course Leader, Jim Sloane reported to the project that of the three sets of drawings relating to three past international building projects, used for the Model Making Workshop, included one set of drawings sourced from the Architectus project (Westminster Academy). Choosing any one set of drawings, split into small groups, over 70 students engaged in an exercise to re-create to scale a model of a section of that respective building. Based upon interpreting the original drawings. The only groups to successfully re-create scale models of their sectional assignments were those using Architectus drawings (Westminster Academy). There is more feedback on the final report video about this.

Video testing in curriculums is on-going. This will take place for post-graduate Property & Construction (Masters degree) students at UWE and Built Environment students at BCU in September now. This has taken place in School of Architecture at BCU involving over 60 first year BArch students.

**Left: BArch undergraduate Model Making Workshop (T4-2 Technology module).**

Westminster Academy resources are the only example of the three sets of drawings sourced from Architectus. Students working in small groups chose one of the three sets of drawings to recreate a scale model of part of the building (sectional) at 1:50 scale. The student groups using the Architectus drawings completed the task the quickest, greatest detail and contextualisation.

Student Mentors have been loaned project iPads and mini-iPads to demonstrate, record and show OER resources and packages in group activities and formative assessment project work – as part of a peer support and mentoring programme. This will begin in the 2013/14 academic year and involve undergraduate and postgraduates on discursive and applied learning activities utilising Architectus resources.

Sustainability

The OERs will then be embedded into teaching and learning activity design and practice across architecture, landscape design, construction, planning and quantity surveying to ensure project sustainability. There will be several Pedagogic Editorial Board review meetings as part of the further dissemination activities and review process in 2013 and 2014.
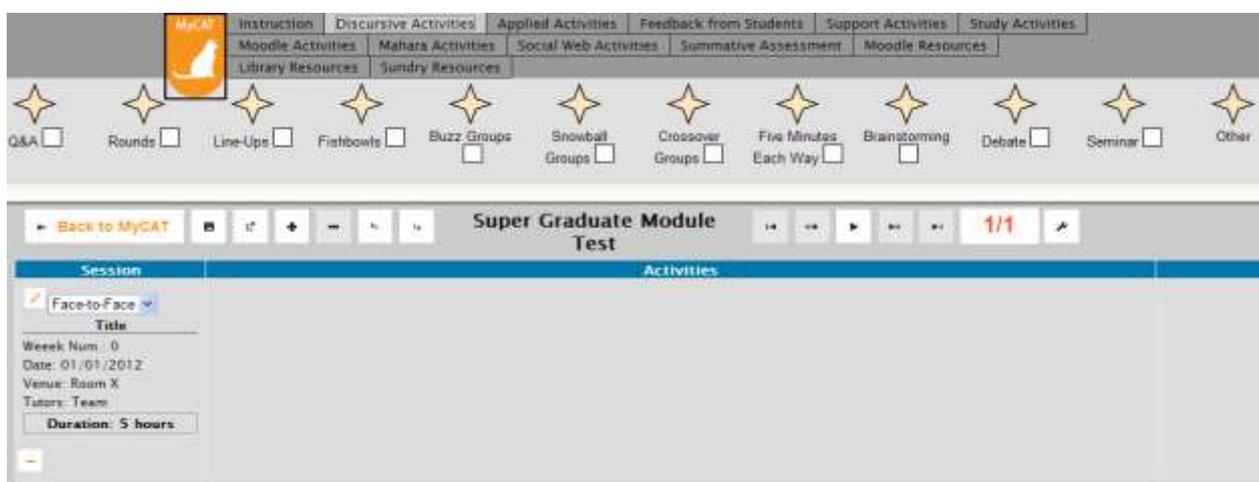
The web portal will continue to develop with new videos, generic learning packages and a permanent contact and simple process (online) to contribute new Practice content to this growing OER. It is also anticipated that the CELT developed Learning Activity Design schematic tool will be used to develop a range of suggested generic applied and discursive learning activities for **architecture, landscape design, construction, planning and quantity surveying.**

The technical sustainability will come from Birmingham City Univeristy, the lead project partner. There is a long term commitment to supporting the back end repository system with continued investment in the next few years. Plus the web portal through CELT (Centre for Enhancement of Learning and Teaching).

Part 9:   Conclusions and Tips for Future Projects

Conclusions

This project was based on an innovative concept, to source contemporary intellectual property material from the private sector and turn them into open educational resources under a Creative Commons licensing mandate. Primarily for the benefit of the wider educational community. This included digitising a private but very valuable and 'active' archive collection from RIBA West Midlands. A collection still being added to when significant new buildings and developments appear over Birmingham and the West Midlands region.

This was all about quality and diversity. That was the plan anyway. However, as the military strategist Helmuth Von Moltke famously remarked: 'no battle plan survives contact with the enemy.' Not that potential commercial architectural practices were in any way enemies but this phrase does have resonance following our experiences on the project team. We actually received content from 15 out of 40 potential practices. This

figure includes all of the initial practices who provided supporting letters to Jisc as part of the bidding process. Adapted from Moltke's remark, the projects' main tip could be:

'No project plan survives contact with potential OER contributors.'

We did not realise the extent of the differences between different professional groups who were stakeholders in the project – between Built Environment and Architecture. This permeated every aspect of the project from structure within the university and partners (UWE) to lines of communication amongst and between the very different professional bodies. The glue to keep this together was actually the involvement and engagement of students within the project research team. As well as the Pedagogic Editorial Board as a sounding board for academics and other project stakeholders to work out operational and practical issues and meet overall project objectives.

Tips for Future Projects

The project needed to learn more about repository 'functionality'. Keep things simple. Effectively this was two content projects in one. Don't be overly ambitious. Sourcing content for access and free downloading under cc licensing from commercial companies is a big challenge. Stick to a smaller remit i.e. one stage of RIBAs Plan of work, only one sector of building, only one timeframe, only a particular type of learning objective or outcome or just one geographical area e.g. London only building or Scotland or England. Purely because economies of scale are difficult to achieve within this sort of budget, human intensive resources and especially project timeframe. There were time management issues not helped by potential contributors more pressing commercial needs. If they were incentivised with money to provide content the project team felt positive responses and the flow of 'real' content would have been even quicker and more efficient. However, the project team feel that Architectus has more than fulfilled its initial promise of 2000 assets (it will be over 4000) and as David in the recent film *Prometheus* provocatively forecasts:
'Big things come from small beginnings.'

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