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67 Bricks | Sam Herbert and Inigo Surguy

Start-up Story

67 Bricks – helping publishers survive in the modern digital age

This is one of a series of short articles and is intended to help the knowledge community understand the purpose of innovative start-ups that seek to provide solutions to problems in scholarly communications. These stories may also provide inspiration and useful case studies for other aspiring start-ups.

This article features 67 Bricks, a software development consultancy that helps publishers build information products for the data-driven world.

Keywords

AI; software; development; publishing; platforms; data; enrichment

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A changing landscape

The current cohort of researchers and authors are the smartphone generation. As users of consumer services like Amazon, Uber and Google, they are accustomed to slick, efficient and personalized online experiences with data-driven approaches and artificial intelligence (AI) at their core. They increasingly expect the same experiences from their publisher. Alongside changes in user expectations, our industry is facing the introduction of threats and opportunities such as the rise of open access (OA), SciHub, Google Scholar and changing business models. The research landscape is in a state of flux. At 67 Bricks we believe that the success of scholarly publishers is driven by their ability to respond to change and that those who fail to adapt will simply be left behind.

From humble beginnings

It is against this backdrop of change in the industry that 67 Bricks was born. Fifteen years ago we met whilst working at a CMS software company. We quickly realized that our skills – deep technical expertise and an ability to help business people understand today's technologies and apply them sensibly in their business – were complementary, and that we might work well together.

> 'the success of scholarly publishers is driven by their ability to respond to change'

The first knowledge organization that placed its trust in our fledgling company was the British Standards Institution (BSI), for whom we created a tool which allowed the public to review and comment on draft standards documents online. This was closely followed by a new system for Pharmaceutical Press, to help their staff create and manage structured drug interactions content. The system we built allows editors to create content by filling in fields which make copious use of controlled vocabularies, and in doing so they automatically build up a human readable statement about the drug interaction. Terms selected from the vocabularies are automatically interpreted into the right form (e.g. tense, singular/plural) needed for grammatical correctness and a live preview is created on the fly, providing essential feedback to the editor to check the sense of the information they are constructing and ensuring editorial consistency. This was an important piece of work as

it allowed Pharmaceutical Press to create and output content faster and more reliably than before, and removed a major risk to the business as any errors in the interactions published could be directly detrimental to patient care.[1]

As a result of these early projects, word got around that our new company, 67 Bricks, were technology experts who really 'got' publishers and could be trusted with their content and data. Our business took off.

'create and output content faster and more reliably than before'

The problem with traditional vendor products

The scholarly publishers we talk to want to deliver exceptional user experiences and develop a unique market position. However, they are often dissatisfied with the lack of control, flexibility and agility that traditional vendor products give them. Lots of large vendors sell off-the-shelf technology solutions that leave publishers with a solution that is rigid, not tailored to their specific end-user requirements and cannot adapt quickly to changing expectations.

Tying yourself to a particular vendor product or supplier configuration was a reasonable compromise a decade ago because of the higher cost of alternatives. But technology has moved on and the huge growth in dedicated, modular components means that publishers now have a cost-effective alternative. However, we have found that many publishers cannot achieve business objectives because they do not have the in-house technical expertise or capacity. Publishers therefore want to work with a supplier like us, where we are willing to work collaboratively and support internal growth of technical capabilities.

A custom-built alternative

At 67 Bricks we build custom information products that meet the specific needs of researchers, authors and publishers. The problems our systems solve include improved discoverability, supporting existing and new business models, enabling better reuse of content and delivering increased revenues. We take the time to understand each publisher's business objectives and design and implement flexible, component-based technical architectures to deliver on publishers' current and future needs.

'helping to evolve publishers' content from being a traditional static asset'

We have specific expertise in content and data enrichment, for example merging third-party data from an external authoritative source, entity identification, content classification and applying modern content-processing techniques like machine learning, AI and natural language processing to add structure, context and metadata to content. Enriched data is not only more useful to humans and computers but it can also be used to power a number of value-add product features including personalized user experiences and content recommendations, helping to evolve publishers' content from being a traditional static asset, e.g. a book or article, to something more agile and dynamic, which is exactly the type of value the modern-day researcher is seeking from their publisher.

Our solutions are built using modern and performant content and data technologies. We select the best combination of programming languages, frameworks and tools for the individual needs of the publisher and their existing technical capabilities. To ensure robustness, performance and scalability, we then deploy to the cloud.

'we build our systems in an agile way'

Nothing is set in stone and we build our systems in an agile way: as early as possible we have a working version of the software in place to allow testing, and we then quickly roll out different iterations of a solution which flex as we gather feedback from stakeholders and users – authors, editors, product teams, librarians, researchers – 'on the go'. The publishers we work with love this level of control, flexibility and agility, which is often not an option when buying an off-the-shelf product, for example where change requests may be added to a long queue and prioritized according to the interests of the vendor or their largest customers, leaving some smaller publishers waiting years for what should be trivial fixes.

A collaborative approach

We are small, dynamic and nimble. This means that we can get involved much earlier in the process to help publishers work out what products and platforms need to be built and the specific features required to support publishers' needs. We help with the initial stages of information gathering, run workshops to develop ideas and perform content and data analysis. During the analysis phase we often prototype solutions to assess the viability of using a particular technology or approach with a publisher's content or carry out in-depth interviews with senior stakeholders to understand where the business wants to go and how technology could support these business objectives.

We have partnered with a number of publishers on successful phases of R&D to generate and test new ideas and inform ongoing product strategies. In doing so, we have been able to build rapid prototypes and beta systems that allow ideas and features to be quickly tested with authors or researchers to gain early feedback which can usefully shape a publisher's product or platform roadmap.

'Knowledge transfer is an important part of many projects'

Knowledge transfer is an important part of many projects. This allows publishers to build up their internal technology skills and capabilities and means that, post launch, they can fully own and control the software we build. We regularly lead co-development teams made up of 67 Bricks developers working alongside publishers' own internal software developers, facilitated by heavy use of online communication, reciprocal peer review of code and a shared understanding of business drivers. A recent example of a successful co-development project is BMJ Best Practice Knowledge Base.[2] Our commitment to knowledge transfer means that post launch, we can either hand over the software to publishers to maintain and extend to meet their future needs or, if publishers do not have the capacity or desire to do this in-house, we can continue to work together as partners to support ongoing development.

Building long-term partnerships

Our business model is centred around developing long-term relationships with publishers. We invest time and energy upfront to understand their organization, their data and their business objectives. For example, when building a new, automated OA system for The Royal Society of Chemistry, we asked questions such as: What journey does the author need to take to manage their OA? How do they interact with the interface? What logical steps make life easier or harder for them? How can we make this simpler? Starting from this new perspective flipped everything. As a result, the majority of publishers we work with see us a partner in achieving their business objectives rather than a supplier who simply provides technical resources.

'Our business model is centred around developing long-term relationships with publishers'

We find that developing long-term relationships is beneficial for us and for the publishers we work with. We win most of our work from existing clients or from referrals, which allows us to invest more of our time in project implementation because we need to spend less time doing marketing and sales.

For example, as partner for Emerald, over 24 months we have helped them take the bold and important step of moving away from their existing platform vendor, helping them launch a completely new Emerald Insight digital research platform.[3] During the project, the Emerald and 67 Bricks teams worked closely with a wide range of users, including authors, researchers and librarians, following an agile process, to create prototypes and understand how features are used, and we will continue with this methodology to implement new tools and services in the future.

Another example is the Royal Society of Chemistry which, over the course of our ongoing five-year partnership, has engaged us in multiple consecutive projects to help them deliver a more compelling and powerful author experience. We have helped them iteratively

implement systems and processes that have significantly improved the experience for end-users of their systems. Most recently, we worked with them to deliver a new, automated OA system that is flexible and robust enough to grow alongside their OA programme and adapt as the OA landscape continues to evolve.[4]

Overcoming challenges

All start-ups come across bumps in the road, and one of the biggest challenges we have faced over the years is how we help traditionally minded customers understand the imperative to become more product focused, before it is a case of 'too little too late'.

As 67 Bricks continues to develop, we believe it is critically important to retain the qualities and integrity of the business that customers and staff loved you for in the first place. Our advice to other start-ups in the knowledge community is to stay true to yourself, no matter how big you grow or how much the market changes. This ethos has held us in good stead. 67 Bricks has grown purely organically with no external investment or acquisition, and we almost entirely rely on repeat business and referrals. We never oversell, and resist outsourcing anything. Our team has grown in size to 30 employees encompassing skilled developers, publishing consultants and market experts, with growth set to continue.

'we help traditionally minded customers understand the imperative to become more product focused'

Looking to the future

As we look to the future, forward-thinking academic publishers are reinventing themselves from top to bottom and with technologies such as machine learning and natural language processing at their disposal, they can own, store and use data as never before. Elsevier has repositioned itself as 'an information analytics company' and Springer Nature has just launched the first AI-produced book.[5] More and more of the big publishers are now acquiring technology skills into their business, realizing that technology when implemented correctly can help drive their publishing strategy and success, rather than holding it back. Not only will this make publishers and the products and services they provide more efficient and valuable but it will also personalize and enrich researchers' and authors' online experiences, boost discovery, help uncover connections and insights, and ultimately breathe new life into the industry as a whole.

'technology when implemented correctly can help drive … publishing strategy and success'

We are now regularly invited to talk about the importance of product, data and technologies such as AI and machine learning at industry events such as the London Book Fair, Frankfurt Book Fair and ConTech.Live. Ten years ago these subjects were simply not on the agenda. At 67 Bricks we believe that our industry will continue to evolve to meet changing researcher needs and to embrace new technologies and that the success of scholarly publishers is driven by their ability to respond to these changes. We look forward to continuing to help publishers on this journey towards a more data-driven future.

Abbreviations and Acronyms
A list of the abbreviations and acronyms used in this and other *Insights* articles can be accessed here – click on the URL below and then select the 'full list of industry A&As' link: **http://www.uksg.org/publications#aa**

Competing interests
The authors have declared no competing interests. They are Co-Founders of 67 Bricks.

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