

The AGA Archive: An Innovative Application of a Business Archive as an Inspirational Resource for Designers

Dr. Shane Walker¹, Charlotte Whitehead² and Dr. David Prytherch¹.

¹ Birmingham Institute of Art and Design, Birmingham City University, Corporation Street, Birmingham, B4 7DX United Kingdom

shane.walker@bcu.ac.uk

²AGA Rangemaster Ltd., Station Road, Ketley, Telford TF1 5AQ

Abstract

The paper describes how the transfer of technologies and skills in management and prioritisation of a business archive can have a transformative effect on business practice, through the exploitation of a largely under-used or unrecognised company asset. Both the physical and digital material may be accessed for use in new product design and development and to deliver a cultural retail offer, via online platforms such as social media tools. Together with the more traditional approaches for producing marketing materials to inspire consumer confidence, this can reinforce credibility in the brand by harnessing the company's heritage to provide a unique positioning against competitors.

The project has identified that useful knowledge can be 'locked up' or inaccessible within archives, even when described through traditional cataloguing systems and that the application of visual technologies can uncover new and valuable information that would otherwise remain undiscovered. This information should have implications for new product design, business strategy and development, marketing and sales.

The process of digitisation can itself uncover knowledge of design practice, research and development work from prior company history which can be of immense value to design teams involved in new developments, as well as underpinning and reinforcing brand image and integrity. By using web based systems of controlled image communication, remote design collaborators such as SME suppliers, can be kept up to date with newly discovered archive design documents, images and style references, PR and marketing can freely access historical material to support their specific sales campaigns, whilst the legal department can refer to past design development when establishing evidential trails.

This KTP with AGA Rangemaster plc is a work-in-progress. The paper discusses some early significant outcomes from the work, including some unique knowledge transfer opportunities.

Keywords: Archive - technology - digitisation - design - business - knowledge exchange

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Introduction

AGA is a brand that has a great heritage. The AGA cooker is made in the Coalbrookdale foundry, where Abraham Darby first made cast iron cooking pots, using a method for which Queen Anne granted him a patent in 1707. AGA cast iron cookware is still made in the same way and the same place to this day. In 1986 the Ironbridge Gorge was awarded World Heritage status by UNESCO due to its industrial importance.

The AGA cooker was first made in the UK in the early 1930s in Smethwick, West Midlands then manufacture moved to Coalbrookdale in the aftermath of the Second World War. The AGA is still made from cast iron and cooks by radiant heat. Originally designed to run on solid fuel, the company also developed oil and gas models and there is now an electric generation which are programmable. In 2011 the AGA Total Control was launched and in collaboration with Birmingham Institute of Art and Design/Birmingham City University (BIAD/BCU) and another Knowledge Transfer Partnership (No. KTP007929) controllability was extended so that the AGA can be turned off and on using a standard mobile phone, or an app on a smartphone, PC, laptop, iPad or tablet.

This paper describes and discusses the work of a second Knowledge Transfer Partnership (KTP) the company have with BIAD/BCU, to create a digital "Design Archive Gallery" (DAG), the objective of which is to enable access to and encourage creative use of the AGA Group's archives within design initiatives leading to greater integration of the resource within the company. The project also aims to strategically cascade access to the group's wider network of SMEs including: component and accessory suppliers, architects, home and kitchen designers and other specifiers.

In the UK KTPs are amongst a broad range of knowledge transfer mechanisms intended to convert and transfer university expertise into commercial environments. This agenda has been reinforced through government policy and Research Councils [1] (RCUK, 2011), and includes a wide variety of mechanisms such as consultancy, joint research ventures and university spin-off businesses. We discuss a highly successful form of collaborative knowledge exchange, the KTP scheme, enabling a strategic partnership between a knowledge provider (University) and a company (AGA Rangemaster). The process of knowledge transfer is achieved through an Associate, a recent graduate employed by the University but based full-time in the company. The aim is to develop strategic change within the business that will deliver enhanced profitability and projects are typically between 18 months to 2 years duration. Despite extensive experience of the programme, comparatively few projects involve design-related activity; most are of a managerial or technical nature.

1. The Project Background

In this case the KTP Associate is a recently qualified archivist, who brings specific heritage sector skills to the project that would not normally be found in the commercial environment. Some of this specialist knowledge is easily transferable, such as the teaching of appropriate handling techniques for original material and other preventative preservation methods, whilst other knowledge will be passed on through discoveries made whilst researching the archive, making unforeseen connections and writing company histories.

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The early work on this KTP project initially provided a reference for identifying the 'AGA look' and charting developments in design and style, however it is intended that the DAG develop into a resource for new product innovation and design inspiration developing the collective knowledge of the group and its SME 'family' [2]. (Hecker, 2012) It is envisaged that the project will harness effective ways to encourage the use of the archive in design and PR, increasing brand awareness and understanding as well as enhancing the design, style and marketing of existing and new products, opening new market opportunities both at home and abroad. Users will be able to access protected elements of the DAG remotely via a web browser upon application for login details and what is viewed will be dependent on permissions for the particular user, however some content will be made freely accessible as an online gallery. Use of the DAG by designers and marketing is expected to have a significant impact on growth in sales, projected as approximately £15m in year 3 after the KTP programme.

By undertaking this KTP the company is committed to making a substantial investment of an estimated £232,000 to capitalise on its rich heritage of over 300 years and reap the rewards. This sum is in addition to the cost of the KTP (£42,201) and is supported by an enlightened management structure who fully understand both the value of design practice as a problem solver and the significance of heritage assets owned by the company [3] (Millward, Byrne & Lewis, 2003). This is significantly facilitated by the Group CEO who is personally involved in the project, directing and guiding the work of the Associate so that it services the Group's long term strategic aims, ensuring that the learning and new understandings generated by the archivist cascade down through its employees and SME suppliers, emphasising AGA Rangemaster's commitment to being a "Learning Organization" [4]. (Garvin, Edmondson & Gino, 2008)

The KTP programme has already demonstrated its value to the company and will continue to facilitate innovation throughout the broad spectrum of cooking products manufactured by the group. This includes the supply chain SME 'family' of "strategic alliances" [5] (Koza & Lewin, 2000) who provide accessories and bespoke kitchenware to the AGA Group - some branded others not. These supply chain companies, including a number within the West Midlands region will use the DAG to respond more quickly to product changes, and design and style developments, delivering their own design inspiration input and creating more attractive products.

Just prior to the establishment of this KTP, a BIAD/BCU MA Product Design student project was carried out with AGA Ltd with the brief to develop a range of AGA inspired products. The project was very successful in producing a range of completely new product concepts from heated towel rails to portable heating panels. It was notable that these product concepts had managed to capture the 'AGA look', which can be attributed to the research the students carried out on the company during the design and concept stages. This exercise helped pave the way for the development of the KTP proposal between BIAD/BCU through a clear demonstration of the value of referencing past product designs and styles etc.

The DAG will reference product design evolution through tracking such themes as significant product styling, core colours and their historical development and record the company's history of involvement with environmental issues including reduction of energy usage, insulation improvements and renewable energy sources. This will

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act as a source of information on the company's past products enabling comparisons with the design and performance of new products and demonstrating their commitment to sustainability and reduced running costs.

On this project, the skills of an in-house archivist creating improved access to the archive material and specifying the adoption of new technologies for communication and management has led to some very important and financially rewarding benefits. A most significant discovery, made during the first three months of the project was an original handwritten parchment, the enrolment of a patent granted by Queen Anne in 1707, which was traced to the National Archives, Kew. It was known from a 19th century transcription, but the original 306 year old parchment was considered to hold significant worth in underpinning the authenticity of the company heritage. The resulting marketing exposure in trade publications, local newspapers and radio stations is estimated to have generated an immediate PR value to the company of £19.5k.

1.1 Early Outcomes: The 1707 patent and commercial opportunities

There may be considerable knowledge "locked up" in an un-catalogued archive and though it's pragmatic value may not be immediately apparent, by gaining intellectual control of the material and therefore an understanding of the administrative history of the company, the experience of this project has shown that unforeseen and emergent value can be harnessed for commercial exploitation. Identifying and transferring significant historical knowledge and recognising the value and opportunity this presents has been a key objective of this work.

The new commercial opportunities and priorities established in the months following the identification of the 1707 patent roll at the National Archives and having the appropriate section digitised for commercial use were heavily focussed on marketing of cast iron cookware for AGA Cookshop, as it was the innovative and novel manufacture of cast iron cooking pots for which this early patent was granted.

'A new way of casting iron bellied potts, and other iron bellied ware in sand only, without loam or clay, by which iron pots and other ware may be cast fine and with more ease and expedition and may be afforded cheaper than they can be by the way commonly used, and in regard to their cheapnesse may be of great advantage to the poore of this our Kingdome, who for the most part use such ware, and in all probability will prevent the merchants of England going to forreign markets for such ware, from whence great quantities are imported, and likewise may in time supply foreign markets with that manufacture of our own dominions' [6]

Tracing the original enrolment of the Patent granted by Queen Anne to Abraham Darby on the 18th April 1707 has allowed the present day company opportunities for enhancing their brand image. By embedding this unique selling point and capitalising on their long heritage within marketing campaigns and other PR initiatives the company has further defined its brand, emphasising its already strong position in the marketplace.

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Figure 1. Example of an AGA Cookshop brochure page designed following the 1707 patent discovery.

Marketing materials/content which were produced in response included:

- Brochures (Figure 1)
- Point of Sale materials
- Video
- Radio
- 'Whispering window' hologram display
- Articles in local newspapers
- Articles in trade publications
- Online content; both via the company's established web-presence as well as via Social media

Following these initial uses, the opportunities widened significantly to encompass work for the Design Expo at IDEA Birmingham in June, 2012 [7]

The location of the original text within the larger patent roll was also important in an archival and historical context. The text directly preceding the grant to Abraham Darby, was the declaration of appointment of a Commission for Trade and Plantations. This commission had been in existence in an evolving form from about mid-17th century, there having originally been a temporary committee of inquiry which later grew into a government department. At the beginning of the 18th century Queen Anne appointed her husband, George, Prince of Denmark to oversee it. What is of particular historical interest, and is relevant to both current company concerns and to the ethos of the KTP, is that it continued to evolve, eventually becoming the Board of Trade which later merged in 1970 with the Ministry of Technology to become the Department of Trade and Industry (DTI) which since 2009 became the Department for Business, Innovation and Skills (BIS). Thus the historical thread of AGA's past tracks the birth and continuing evolution of our UK governance of international and domestic trade and manufacture, and is an exemplar of a highly successful leading edge British manufacturing company with its roots in the very beginnings of the Industrial Revolution.

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The identification of the patent and its use so early in the project had an important and unforeseen impact on the company with a marked change in the understanding of the value of heritage within the business. Its successful application in brand marketing and PR provided an accessible and engaging set of materials, which by their nature explain why a tool such as the DAG is strategically important to the company. The company's internal publicity encouraged further resource discovery and acted as a catalyst to a shift in thinking about the relevance of heritage to current commercial strategy. The brochures and point of sale material, as well as other outcomes listed above which were produced as a direct response to the original patent, show heritage being used effectively within a defined marketing initiative. They helped to embed the objectives of the KTP through a centralised use of the motifs featuring the scrolled parchment, which led employees to ask questions about the project and express interest. Several disparate brands within the group approached the archivist in the wake of the successful identification of the 1707 patent for advice on how to progress with ideas for marketing campaigns based in heritage and the celebration of significant anniversaries. The archivist was able to offer advice and undertake research on their behalf where appropriate. This work highlighted the value of having in-house archival expertise, and specialist research skills to fully exploit the historical assets, both within the company owned collections and elsewhere, linking them with the company's current marketing strategy and overall mission statement. It is the combination of the needs of particular teams within the group, the knowledge and expertise of the archivist and the interactions between them that unlocks the potential that an archive represents for developing and exploiting opportunities. Any use of the archive must be central to the business, to communicate itself coherently and align itself with the company's core values and evolving strategies. The recognition of the value of an artifact is greatly enhanced through the archivist's ability to research and make relevant connections. The seemingly innocuous specialist understanding can produce emergent meanings and associations that would not have been generally recognised by employees simply accessing items within a text based descriptive database.

1.2 The Physical Material and Archive Strategy

The cataloguing and re-packing of the physical artifacts and their placement for conservation and long-term preservation in institutions with appropriate storage facilities such as County and National Archives, Film and Audio archives etc. has also been recognised as vitally significant, since at root, these original and unique documents are the true treasures of the company history (see Figure 2). Since the company's archive material has turned out to be unexpectedly extensive, and as more and more boxes have appeared out of little used cupboards and attics at various company sites as the project has progressed, this aspect has consumed more time than originally anticipated when the KTP was planned. Even now there is more material amassing as recent yet historic documents are released to the archivist for research. It is important to recognise that the retention and access strategies applied to these physical remnants of the group's past must form the core of such a project and for this reason also, the employment of a specialist to advise the company how best to preserve and manage the material is considered vital.

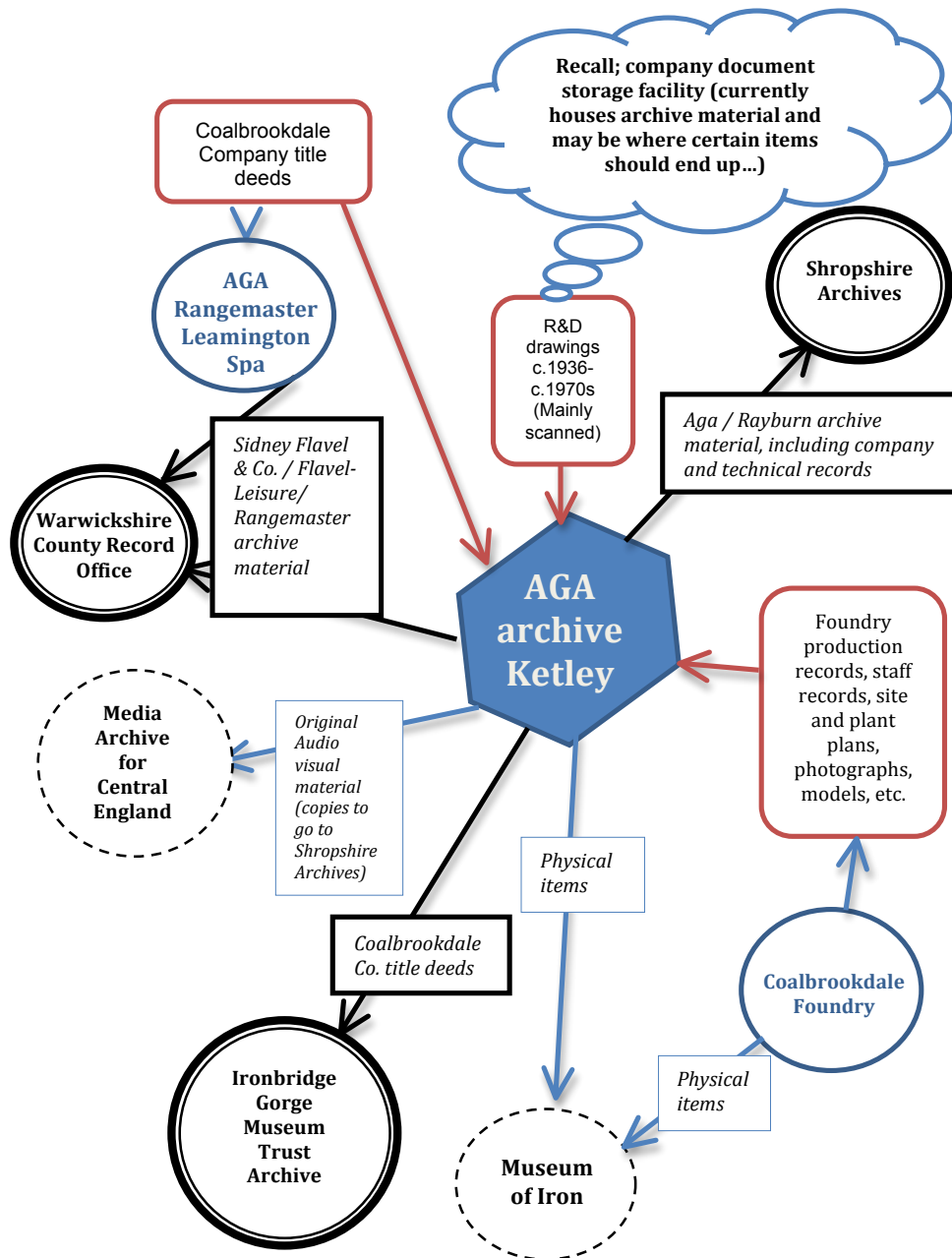


Figure 2. Diagram showing the strategy envisaged for managing the archive material

Although ideally, all relevant design related material might eventually be digitised and stored within the DAG, it is hoped that all material will first be catalogued to ISAD(G) standards in archival databases at the various holding institutions so that digitised copies may reference originals within their metadata. Pragmatic considerations dictate that items considered by the company and the archivist to

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be of particular significance and usefulness should be digitised first. For this reason alone, a good case can be made for following archive industry standards and cataloguing the physical material as well as is possible, so that items of particular merit can be identified and properly contextualised prior to producing surrogate digital copies.

The 1707 patent is a document which stands for the authenticity of cast iron cookware originating in Coalbrookdale, and attests to the longevity of the company values and its continuing pride in its roots. The way in which the company has used this important and unusual document is in itself a marker for the value of continued work on the digital archive systems project and the further commercial opportunities that may be identified by its progress.

The online resource, "Managing Business Archives", a website explaining best practice for Business Archives following the publication of the National Strategy for Business Archives in 2009, notes that the "*great appeal of business archives is that they can be used in so many ways to support (...) business. The information contained in routine business records such as minute books, accounts, strategic plans, product literature and packaging, adverts, and photographs can be translated (...) into brand and product histories*" or can inspire "*innovative ideas for business development, PR, display and point of sale materials*", (<http://www.managingbusinessarchives.co.uk>).

As the project progresses, other possible benefits could include: use of the archive in education resources, bolstering the company's corporate social responsibility stance; use of the archive and history to support training and staff induction presentations, embedding an understanding of the history in future employees and company culture; and the provision of legal evidence to protect intellectual property rights and trademarks where necessary.

However, whilst heritage can underline a product or brand's worth, it is important that brand legacy remains linked to contemporary concerns and is not simply reiterated for its own sake. It has the potential to inform and influence the design process and provide a way of making use of the archive in new product development.

1.3 Inspiration for Designers

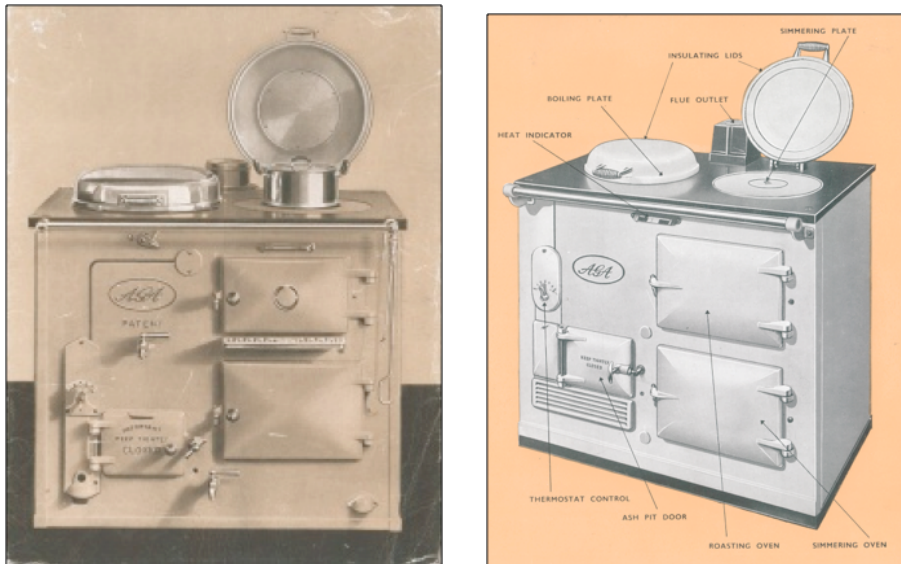
A central innovative initiative of the DAG was to deliver a means of providing the designers of AGA products with an inspirational resource allowing them to easily, and at a distance, access aspects of the brand's long and notable design history. The company have their own in house design team who also provide the basis of research and technical innovation, however many of the components and AGA branded accessories are developed by a varying group of SMEs who have had relatively limited resource to the iconic designs and developments of the past, yet are required to develop ideas and products which can not only function to the highest standards of technical efficiency, but also are clearly and notably "AGA" products.

There is enormous potential for the technology to transfer previously undiscovered knowledge through significant enhancement of the original artifacts. (Figure 3.) For example, an item dating from the 1930s that is included in material on deposit at Shropshire Archive has been digitised, a 1932 AGA catalogue of which only the

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front and back cover are extant. There are several marks made on the printed image in light pencil, some of which are only visible via zooming into the high-resolution digital surrogate of the physical item. These pencil markings appear on an image of the Swedish Model mark 2 model (or LBD) and seem to track the alterations made through the several iterations of the design of the AGA cooker during the 1930s, during which time work was being undertaken at AGA Heat Ltd. to standardise the design of the cooker and its manufacture.



**Figure 3. Design differences between the Swedish Mark 1 and 2 AGA Cookers (1929-1932) and the Standard Model C AGA Cooker (1941-1972)
n.b. There were several interim stages in this redesign.**

Industrial Design was still a developing practice in inter-war Britain. It was a concept imported from the United States prior to WW1, and during the 1930s it was encouraging interest and criticism in equal measure. In 1935 the London Office of the celebrated Industrial Designer, Raymond Loewy Associates opened, the first professional Industrial Design Practice in Britain, and a relationship with AGA Heat Ltd. began with the appointment of Carl Otto and Douglas Scott as stylists for the company. Evidence from company minute books shows that Loewy continued to work with AGA and their parent company, Allied Iron founders well into the 1950s.

Charles Ludovic Scott, the company's Technical Research Officer at the time had been developing the AGA cooker (as well as other items such as the Rayburn) throughout the 1930s and this can be seen in the company's registered patents at the time, as well as in the regular Research and Development reports to the Executive Boards. With the inclusion of stylistic designers on the team, the aesthetic of the AGA cooker was to receive the equivalent attention it had from engineers and technical designers. One contemporary company advert, whilst not for the AGA cooker itself, evidences this shift in design and manufacturing values, stating company pride in its 'Artist-Engineer and Engineer-Inventor combined' approach to design, and heralds the era during which the iconic Standard Model C AGA was being developed.

The markings on the 1932 AGA catalogue show the changes that were made

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which eventually lead to the Swedish import becoming the icon of British design that it remains to this day. It is likely that Loewy's influence led to this standardisation of the AGA Cooker, reflected in his employee Douglas Scott's later design of the Routemaster Bus which was also engineered to be mass-produced in a sustainable way. This was achieved through the incorporation of the maximum number of interchangeable parts thus cutting the costs of initial tooling and manufacture as well as repairs and maintenance (<http://designmuseum.org/design/london-transport>).

An example of the kind of pencil markings on the 1932 brochure cover is that the tap on the front plate has a light pencil cross drawn through it. In Figure 4, it is one of several marks not visible to the naked eye. It is not known if these annotations were made contemporarily to the redesign of the cooker or whether they were made at a later stage, which seems more likely as they chart several redesigns in one, but the digital surrogate provides one of the strongest and clearest arguments for digitisation of archive material, other than preservation issues, and its support to design is clear. This in itself is a stark argument for the designer working with a digital copy, as it perhaps offers more in terms of detail, and access to more detail than the original archival source ever could and may provide insights into the possible thought processes of the designer at the time.

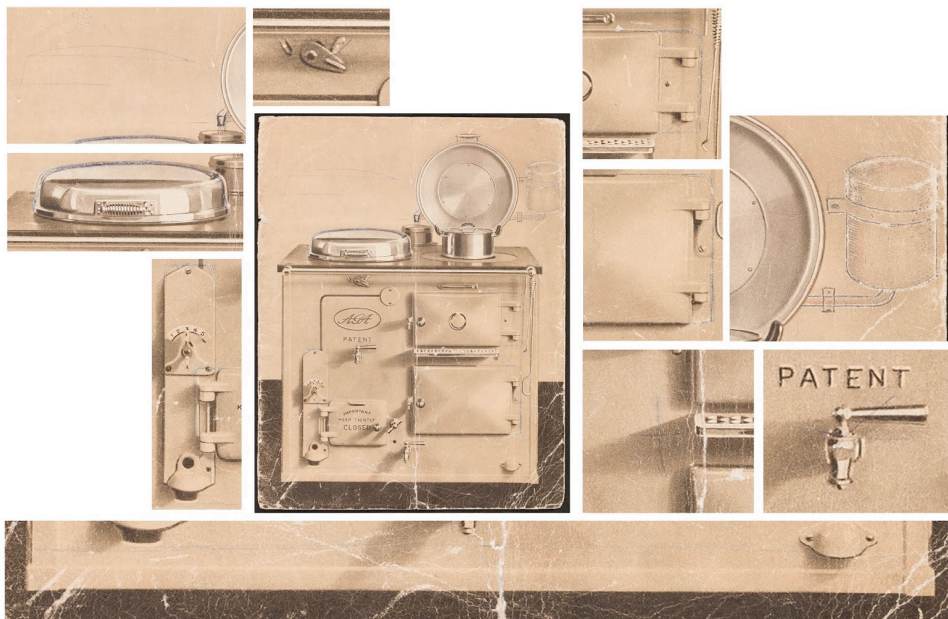


Figure 4. Illustration of Swedish Mark 2 AGA Cooker (1930-1932) with exploded views of selected design change pencil annotations from brochure cover.

In the 1941 Standard Model C AGA Cooker (Figure 3, right) the following styling differences are evident, (There were four re-designs of the AGA before this 1941 standard):

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- Restyled front plate (a continuation of previous restyling, for example the taps had previously been removed, but this model went further than before in its simplification and definition of the design)
- Resized front plate; shorter in height
- Top and bottom oven doors same size
- Oblong grill over auxiliary air inlet and ash-pit door styled (for the first time) to mirror the size and shape of the two oven doors
- Door hinges and handles modified
- Heat gauge placed centrally in the front plate
- Overall design is significantly more efficient

The 1941 Standard Model C AGA cooker remained unaltered until 1972 and has proved to be an icon of British technical and aesthetic design.

1.4 The Archive creates new links with the supply chain fostering innovative business practice

A significant and innovative aspect of the archivist's role on the project has been to visit and work with other related manufacturing sites and cookware supply chain SME's in the UK, predominantly in the Midlands, to gauge whether they consider that a digital resource linking AGA's unique historical material with their current environmental and sustainability developments will impact on collaborative design practices and develop new marketing opportunities between AGA design and their supply chain SME's. The DAG develops a new innovative business practice providing design communications links within the AGA Group and with its supply chain/kitchen design specifier and customer base. It will accelerate strategic new product development [8] (Penfold, 2007) potentially increasing the number of new designs by 10-20% internally and externally through instant authorised accurate information and act as a conduit to reduce time presently lost in long development consultations that use material from a variety of sources. In the case of AGA, the system is to allow past design evolution to be retrieved by specific selected design features, colours, production methods, descriptions etc. creating a strong multi-user tool capitalising on a rich heritage, linking in-house R&D and design more directly with those supply chain SME's who design and manufacture components and accessories. This will provide a marketing platform for cultural sales exploiting "retro" design elements, colours, shapes etc. constituting an "AGA look".

The creation of a structured DAG is to have wider impact allowing controlled web access to specific histories to engage customers' or academic interest and relate the company's operations to their social and historical context. This innovative application of the design expertise held within a company's archive will be applicable to many businesses who design and develop new products, either via their in-house R&D departments or using external suppliers and subcontractors whose links with the company and its history are more tenuous, producing "greater efficiency leading to increased profits, but also unintended outcomes, such as cultural change and market repositioning" [9]. (Roworth-Stokes, 2006)

1.5 Archive access and engagement through new technologies

New scanning and software technologies deliver opportunities that were previously not possible in both digitisation and the eventual management of the digitised material, or make access possible where material was previously inaccessible by specific groups of people i.e. designers. This project has enabled a unique link between the archivist, designers, research & development, marketing and

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communications and the company's supply chain and its customers. The project is demonstrating how these links are working productively and the benefits they will deliver to the company should be measurable in a number of ways.

A number of Data Management systems have been considered as the 'engine' for the DAG, such as Engineering Data Management and Product Data Management (EDM/ PDM) technologies already in use in the company's Research and Development departments, co-incidentally as the project began, the Group Marketing department installed a specialist, Intelligent Management System (IMS) for images and other media, Third Light. This IMS allows storage of images, audio and video, as well as facilitating an appropriate structuring of the archive material, whilst also supporting tagging and the addition of mandatory metadata ensuring returns on searches were successful and meaningful, provided that the indexing was built effectively. The added option of tools such as 'smart folders' which provide an interface for users to gather material together by theme, or other defined parameter, make this a logical selection for the management of the DAG. This decision is also supported by the fact that the marketing department already uses the software, meaning that at the cessation of the KTP the DAG will retain its usability.

A novel aspect of this project was the adoption of social media, in this case Twitter, as a means both of dissemination and generating support and input from the archive community and others with interests in this area (www.twitter.com/@AGAvist). In the ten months since April 25, 2012 the AGA archive account had gathered 362 followers and generated 448 tweets. As the Associate commented, "As a lone archivist it allowed instant access to an international community of other professional peers – a place to ask questions, and develop understanding of and support for the KTP project. The relationships built were then able to be reinforced via meeting the people behind the tweets at events such as seminars, conferences, and training sessions."

Further network and communication links were established back into the other company twitter accounts, feeding into the wider group social media policy. @AGA_Official or @AGArangemaster regularly re-tweet anything which may be of interest to their followers, a mix of customers, suppliers, distributors, etc., as well as using information on Facebook, Pinterest and engaging in other ways with interested parties externally and internally.

Aside from its promotional use, an emerging development of this initiative was that it stimulated the interest of enthusiasts who contacted the Associate with information and stories, and even archive material, opening a dialogue with a wider community internationally to further develop the social history of the company in a broader context. In knowledge transfer terms, this has proven to be one of the most direct ways to engage with and develop the major themes of this project. Recently, Tweet clouds have been generated which track the top 20 words tweeted (Figure 5).

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Figure 5. Tweet cloud generated 26.11.2012.

1.6 Working with technology constraints, issues and areas for improvement

As with any digital and networked system for manufacturing, security and IPR issues are paramount and must be tightly controlled by the company concerned. Certain material may be sensitive, either because the technical innovations described are novel and competitive or subject to prior IPR, or potentially for legal reasons relating to past transactions.

Technological and IPR constraints, for example relating to disparity of file formats, (which may typically be low resolution for web display and higher resolution for examination and evaluation of design and engineering details, and may not be desired to be available to the general public), must also be considered and security measures put in place to restrict access solely to those who require it for contracted work. Systems of standard confidentiality agreements should also be facilitated within the system so that all assets and access to these are safeguarded and hierarchical levels of access for differing groups of users are maintained and properly managed [10]. (Ditillo, 2004)

Conclusions and New Directions

The structured development of an archive repository from a company's historical and design records can play a significant and emergent role in developing product

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design, PR and marketing strategies. This can develop and refine 'Brand Image' accessing the roots of the brand to further capture its 'essence' thereby enhancing the brand for new product development. The KTP described is proving to be an extremely focused and effective method of enabling technology transfer from the highly specialised world of the archivist to a large multi-national group, its PR and sales team and its 'family' of SME suppliers and specifiers facilitating transparent design collaboration between them. This project has highlighted that large organisations need to recognise opportunities with their supply chains that only they can lead on, that when exploited, enhances the customer offer for everyone, improving sales and communication. An important ingredient to the on-going success of this project was that it was recognised as a significant opportunity by senior company management from the outset.

The material legacy of the KTP, the Digital Archive Gallery as a system, will enable teams of designers working in both different geographical and discipline areas to share knowledge, design decisions and inspirational ideas from the archive amongst their teams quickly, effectively and transparently. It might reasonably be assumed that this nascent implementation will lead to possibly unexpected outcomes and potential new ways of working will develop as the system is used commercially.

The project team recognises that this project is not the typical Knowledge Transfer approach often undertaken by other successful partnerships whose aims often relate to addressing problems and opportunities that are fundamentally technological, design, engineering or production based [11]. This KTP is a developing model for accessing and integrating a company's history into its current operations, enabling its past to contribute to informing current and future initiatives as well as creating instant international access via the Internet. One of the most surprising elements of the work was the extent to which new facts about the company's past came to light, for example, the Queen Anne Patent and the links the company had to world leading industrial designers in the 1930's and 1940's, including the World War II intelligence community. The project has been so effective in uncovering interesting historical facts that the company has published a booklet describing the story of the AGA cooker in this period. Unlike many other knowledge transfer design-based projects that tend to have a specific focus, this work is providing a resource for a very broad range of end users and perhaps most importantly, all design teams within the company and group and those in related supplier companies. The development of this resource has created a communication platform that will help future proof the company by maintaining competitive advantage.

A significant emergent aspect of the project has been the Associate's enthusiastic use of social media, in this case notably twitter, which has had the effect of bringing to light new archive material and information from followers. It has also generated greater contact and collaboration from interested and enthusiastic individuals and customers assisting in the development of a committed online community for whom the brand "AGA", is an emotional anchor. The use of social media requires a different and non-corporate mind-set than companies are traditionally used to but is undoubtedly going to be more and more influential in maintaining brand identity and integrity in the future. As Kaplan and Haenlein [12] point out,

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“When aerospace and defense firm Boeing decided to launch its first corporate blog, the site was designed such that users were not allowed to comment on what they saw. Yet, interaction and feedback are critical elements of all Social Media, blogs included. Hence, many readers perceived the Boeing blog as a fake, and simply corporate advertising in disguise”. It is important that companies understand that social media is intrinsically a two-way communication platform requiring transparency and a courageous embrace of all this implies.

The BIAD MA Product Design project referred to earlier in this paper illustrates how by referencing past products and styles, new design concepts emerge. Connecting designers to the company’s past and its past designs is likely to have significant implications for future products. The archive will act as a focus uniquely linking different groups of people and is likely to lead to new discoveries as new facts, ideas and experiences are shared using social media as a platform.

Important future work will be to monitor and analyse the use of the DAG by the different user groups, including supply chain companies, to understand the different ways in which it is used to support business activity. The ability to see the results of connecting design teams across the Group and supplier companies and observing what this will do for new creative thinking and the exchange of new ideas is likely to be significant. Social media will be essential to support this activity. Of particular interest is how design teams in the company and the supply chain companies will use the DAG to enhance design innovation. How, when and where it is used will drive the future development of the DAG. The established methodology and technical implementation means that everything the company designs today and in the future will be able to refer to past knowledge as an on-going resource, whilst in the process, itself becoming a valuable archive asset. This sustainable mechanism ensures that the company’s history continues to help deliver its competitive edge.

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