

CURATING CONNECTIVITY
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Introduction

How can Universities support the microbusiness sector of the Creative Economy?

This paper reflects on the problems and opportunities of knowledge exchange work in the microbusiness sector of the Creative Economy. In particular it looks at ways of aggregating academic research and microbusinesses in order to produce a network of relationships that generate value for those involved. It argues that this pattern of relationships is key to sustaining the long-term health of the UK's Creative Economy sector and that Universities have a particular role to play in enabling that outcome.

The Problem Space

In 2013, Nesta's *Manifesto for the Creative Economy* reported the size of the UK Creative Economy as 9.7% of Gross Value Added for the UK, employing 2.5m people. (Bakshi *et al* 2013, p. 10) This makes it a bigger sector than Financial Services at 9.4% and a point smaller than the 10.7% of *all* manufacturing (BIS 2012 p. 10)

The Nesta research understands the Creative Economy not as those businesses engaged in for instance, advertising, media, theatre, film or game production, but by counting all businesses where more than 30% of employees had received their primary training in a creative or arts based discipline:

In this manifesto, we seek to define a clear framework for policy, based on a simplified definition of the creative industries as *“those sectors which specialise in the use of creative talent for commercial purposes.”* But the creativity which drives these industries is also critical for many other parts of the economy. This arises from growing pressure to differentiate products and services from international competitors, deploying aesthetic and symbolic expressions of quality (such as design, brand and cultural association) which appear to be increasingly important to consumers and businesses. This is what we and others mean by the creative economy, whose activities we define more generally as involving *“the use of creative talent for commercial purposes.”* (Bakshi *et al.* 2013 pp. 13-14, emphasis in original)

This is a very significant move because it looks forward to the next stage of understanding the role of 'creativity' as a driver for the economy as a whole rather than a characteristic of a specific sector. It recognises that the creative application of digital communications technologies is transforming every sector of the economy and much of our social and cultural lives. The demand for digitally skilled creative work is unlikely to abate in the near future; indeed it can be argued that it is a key feature of future economic and social success.

The Creative Economy is characteristically problematic to define, measure and support. Despite more than 16 years of Cultural Industries and Creative Economy Policy (Hesmondhalgh and Pratt 2005) educational, skills or investment agencies struggle to maintain constructive long-term policies that produce consistent and positive impacts for the creative businesses and organisations they work with.

This is partly at least because most of the Creative Economy consists of microbusinesses, that is to say businesses with 0 – 9 employees (Rhodes 2012). In the Brighton Fuse report, 85.1% of the businesses surveyed in the region had fewer than ten employees, with 41.8% in the 2 – 5 range (Sapsed and Nightingale 2013 p. 14). REACT's participants reflect this profile. Around 60% of our creative partners are microbusinesses. The median turnover for the first 21 companies commissioned by REACT was £45,000, on a range from £0 (startups) to £1,665,380.00: they average 3.0 employees, ranging from 1 – 15 employees.

Bakshi *et al* point out that this enormous microbusiness sector is problematic because it obscures many of their creative activities from the view of policy makers and business development agencies:

... creative R&D activities often happen in an iterative rather than 'linear' way, and ... involve sole traders and microbusinesses that, ... are invisible to official surveys; [it] should come as no surprise that they can go 'hidden' and unsupported (Bakshi *et al* 2013 p. 52)

There are also other challenges associated with how these microbusinesses carry out their activities. Creative R&D as well as being iterative, tends to be talent, rather than IP, driven, where the creativity and invention may well reside in repurposing existing IP and platforms rather than creating new IP. This contrasts with conventional technology investment and growth patterns have been predicated on the invention of protectable IP, not just smart ideas.

Conventional creative economy businesses in, for instance, music, media or fashion and entertainment have also been subject to the dynamics of the hit driven economy, where a slate of projects is maintained in the assumption that the occasional 'hit' will support projects that are less successful at the box office. This history also produces a high-risk culture where backing hunches and intuitions is a stock in trade.

These businesses are also very dynamic, fluid and informal. They are the domain of the precarious creative class, where freelance workers might have several income streams as well as their own brand or label (McRobbie 2011). In addition the microbusiness sector is frequently written off as 'lifestyle' business, that is to say a business with no interest in growth 'merely' maintaining its turnover in order to support a particular 'lifestyle'. This derogatory use of the term 'lifestyle business' is of course in direct contradiction with Richard Florida's arguments about the value of a creative class to urban economies where quality of lifestyle becomes a key driver of success (Sapsed & Nightingale 2013 pp. 37 – 42).

The problematic characteristics above are reflected in state-sponsored investment strategies, which by and large have a very strong bias toward the SME sector. This is where the highest growth potential is understood to reside. These positions mirror received wisdom on Venture Capital investment, which is understood as looking for high growth potential businesses that have to some extent already been 'de-risked' by expanding to reach the size and turnover thresholds of an SME.

For all kinds of reasons the creative microbusiness frequently finds itself in the investment 'valley of death' when it comes to becoming a sustainable SME (see Fraser 2011 p. 2). However the presumption of high growth as an unquestioned good is itself frequently problematic for creative microbusinesses, which might frequently be more committed to having a sustainable creative practice rather than growing a business. If we shift the frame for the evaluation of a creative enterprise sector from 'high growth start up' to 'sustainable network' we change our understanding of success from one derived from tech start up to creative microbusiness.

This contradiction between conventional growth metrics and the network effects of creative work clusters has led REACT to focus on the connections that comprise the Creative Economy. Consequently, we are interested in the mutual benefits offered to creative microbusiness by networks; networks of peers, advisors, funders, investors, colleagues, institutions and opportunities. What kind of value do they bring? How do they support different types of growth for the microbusiness sector? What roles do Universities play in these networks?

Universities in the Creative Economy

The REACT microbusiness and SME community has a very high level of University education and are frequently graduates of Universities in the region who have decided to stay in Wales and the South West of England. This reflects the major role that Universities play in the Creative Economy

is as a talent production pipeline. Both the Brighton Fuse and Nesta reports of 2013 emphasise the importance of Universities in providing the human capital necessary for both national and regional creative economy success, whether that is through strength of research or the training of talented graduates. At a regional level the impact of Stanford University is often cited as one of the main factors in the success of Silicon Valley as the global leader in digital economy innovation (Bakshi *et al* 2013 p. 57). REACT operates at a provincial level where our University partners in Bath, Bristol, Cardiff & Exeter are acutely aware of the importance of retaining smart graduates for successful regional development.

Universities also intervene in the economy by offering start-up and innovation support. However, REACT has found that the assumptions underpinning University business support programmes are inimical to the conditions of the Creative Economy described above. Such schemes are frequently run by University business development units. These units are usually concerned with tech-transfer and spin-out business models. These models assume a set of characteristics that are usually derived from, and dominated by, the hard sciences. Typically it is assumed that researchers in labs will create IP in the form of an algorithm, bio-technology or a new materials application. Researchers or business managers then identify a market failure or a new market opportunity that this innovation might be able to answer. The innovation may then become subject to an incubator and spin-out process with links to investment from agencies like the TSB or University affiliated Venture Capital funds.

These dominant processes for University business engagement are not, on the whole, appropriate for Creative Economy sectors. The 'idea-application-incubate-spin-out'/'invest-then-exit-at-profit' process clearly has the merit of being an obvious, linear model of engagement. However our research has suggested that it is not ideal for Creative businesses because they are high risk, they frequently work on a hit-driven, slate model of product and service development which is frequently non-linear, and their success may be dependent on taste and culture more than efficiency or productivity. To return to the Nesta argument above, creative business are engaged with a wide range of "aesthetic and symbolic expressions of quality such as design, brand and cultural association which appear to be increasingly important to consumers and businesses." (Bakshi *et al* 2013 p. 4) Moreover the creatively driven microbusinesses produced by the contemporary University talent pipeline are more likely to thrive in the peer to peer, open source, digital gift economy than they are in the IP protected isolation of the incubation process.

The assumptions about University ownership and investment that are built into the tech transfer model are also frequently unsuitable for fledgling creative businesses. Universities can all too easily alienate themselves from creative start ups by, for instance, insisting that any staff research in the process is charged at the full day-rate which can represent startups or spin outs with unsupportable costs. Universities may be working with a contractual model that assumes their ownership of IP, but may not have the requisite resources or experience to exploit it in the creative digital economy. Finally University legal and finance departments are cumbersome, frequently clumsy and opaque when viewed from the position of the small creative business.

The REACT Proposition

REACT's method and approach has been expressly designed to support innovation in the landscape described above. One way of addressing the problem space we have outlined is to attempt to create critical mass from the chaotic energy of the creative microbusiness sector. A key function of REACT has been to aggregate people and businesses into a network that can constitute such a critical mass. This reflects recent research findings about KE in this sector:

Specifically, successful models of Knowledge Exchange activity tend to have the following characteristics and principles: informal, individual and network-led; appropriate for a business' stage of development; highly collaborative; highly networked; cross disciplinary; accessible and brokered; part of a systematised approach to innovation;

include access to finance and to new markets; led by evidence and with a recognition of success and economic impact (Channer *et al.* 2013 p. 6)

The crucial connections in this network are the relationships between its agents. We identified right at the outset of our research that creative businesses were interested in working with Universities but were unsure how to broker relationships and that university researchers were interested in developing new forms of engagement (driven by the impact agenda) but also did not know how to go about it. So a headline measure of success for REACT has always been that as a result of our intervention there will be a hundred academics in our partner universities and a hundred creative businesses who can connect with one another, and have ongoing productive relationships. We also aimed to create a neutral territory where some of the differences in approaches, timescales and working cultures might interact to produce a new network with its own identity and potential for fruitful longevity.

To achieve this REACT subcontracted its methodology from its lead partner, Watershed. Clare Reddington, Director of Watershed's Pervasive Media Studio, developed and launched the first Sandbox innovation programme for Media startups in 2008. The Sandbox is a method for bringing people together in an ideas generation and prototyping process. It is a three month mentored programme which emphasises peer learning, iterative design and open sharing. REACT has adapted this methodology by building it around partnerships between academics in the Arts and Humanities and creative companies. The selection of projects and the way they are mentored is heavily curated by a dedicated Creative Producer. Each Sandbox follows a theme identified by a board of academic and industry advisors (e.g. 'Heritage', 'Books and Print', 'Future Documentary'). This produces a cohort of discrete projects, united by a common theme, who can share learning, skills and experiences with one another. In this way, the Sandbox uses the idea of 'crowding diversity' to jump start innovation.

Value

I think a network will always have loose connections which are searching for other connections. (...) People who are interested in things you are interested in will grab on to them or link up and make a new connection. I found the process invigorating.
(Books & Print Sandbox Participant)

The REACT Sandbox method is underpinned by a theoretical approach to value that draws on a number of overlapping traditions. The cybernetic thinking of, for instance, Gregory Bateson, his influence on Felix Guattari's ecosophy and its subsequent reinterpretation in Matt Fuller's pioneering work in Media Ecology, offer us a way of understanding our process as a whole system:

Ecologists focus more on dynamic systems in which any one part is always multiply connected, acting by virtue of those connections, and always variable, such that it can be regarded as a pattern rather than simply an object (Fuller 2005 p. 4)

REACT was conceptualised as a system for the circulation of knowledge and the co-creation of value. REACT's approach to understanding value has been heavily influenced by Bill Sharpe's work with the International Futures Forum, especially *Economies of Life* (Sharpe 2010). Sharpe's work is driven by an understanding of the works of the biologists Varela & Maturana, especially the idea of enactive cognition which understands experience as the product of relational systems (Hallowell 2009). Sharpe argues that 'value' is contextual, enacted by living beings in a pattern of relationships. Different agents within any ecosystem will experience value differently, and different values are produced by agents who are frequently acting in multiple economies.

These general approaches gain traction for REACT where they start to intersect with business and organisational studies, especially around studies of the benefits of co-location (van der Borgh *et al.*

2012). We have also drawn on the work of Bill Sharpe's collaborator, Rafael Ramirez, who has developed the idea of the value constellation (Normann and Ramirez 1993). 'Value constellation' understands value as a property co-produced by many agents in a business network, rather than being created and consumed in a linear value chain. This concept is particularly compelling as a way of thinking about the value produced through co-creation. Ramirez (1999) showed how the distinction between value chain and value constellation is appropriate to the logics of co-production.

Digital innovators in the creative economy are increasingly driven by a logic of co-creation, where value is produced for the business and the user through their interaction around a service or a platform. Importantly for our method, however, Ramirez' approach stresses the importance of the co-ordinating agent of any value constellation: these systems do not just evolve, they are designed and curated. We argue that they require a particular kind of agency at their heart where networked value creation is supported and directed by creative producers.

These general approaches to cultural production have underpinned Watershed's understanding of its role as a regional cultural institution and have in turn informed the ethos of the Pervasive Media Studio and UWE's Digital Cultures Research Centre (Bachmann *et al.* 2012). These approaches are designed to have the effect of constantly strengthening the local creative ecosystem; small creative players aggregated together in co located spaces, times and social media constitute networks of creativity and innovation. These networks are driven by sharing ideas and resources, and by the new forms of interdisciplinarity brought into being by digital technologies. The next section illustrates what this means in practice.

Visualising Connectivity

To test our proposition we have produced some data visualisations to represent the networks of agents associated with our Books & Print Sandbox. These visualisations capture connections made between academics, creatives, contractors, mentors and REACT staff across the period of the Sandbox. The visualisations are derived from interviews conducted with the Books & Print Sandbox teams, and generated using the open source software Gephi. We have taken all the professional and location data gathered from our initial Ideas Lab participants and all the research interviews with lead business and academic partners we conducted with one entire cohort of Sandbox participants. We then analysed the interview data, coding it for instances where subjects talked about meeting or working with new people, making new connections and forming new working relationships. The interview data and our own knowledge of the development of this cohort also allowed us to make some inferences about the strength of the relationships represented by the thickness of the connecting lines in the graphs below.

The first visualisation, Figure 1 (overleaf) shows the initial set of individuals who came to our three Ideas Labs. Ideas Labs are the initial ideas generation days that begin the REACT Sandbox process. We usually hold three in different locations across the South West. They are led by an external facilitator, with the whole REACT delivery team in support. The Ideas Labs are designed to generate both new relationships and project ideas, which lead to bids for Sandbox funding.

In this visualisation, the pale blue dots represent the creative business partners and the dark blue dots represents the academics. For Books & Print Sandbox Ideas Labs, there were 197 academics and businesses in the initial conversations, many meeting one another for the first time.

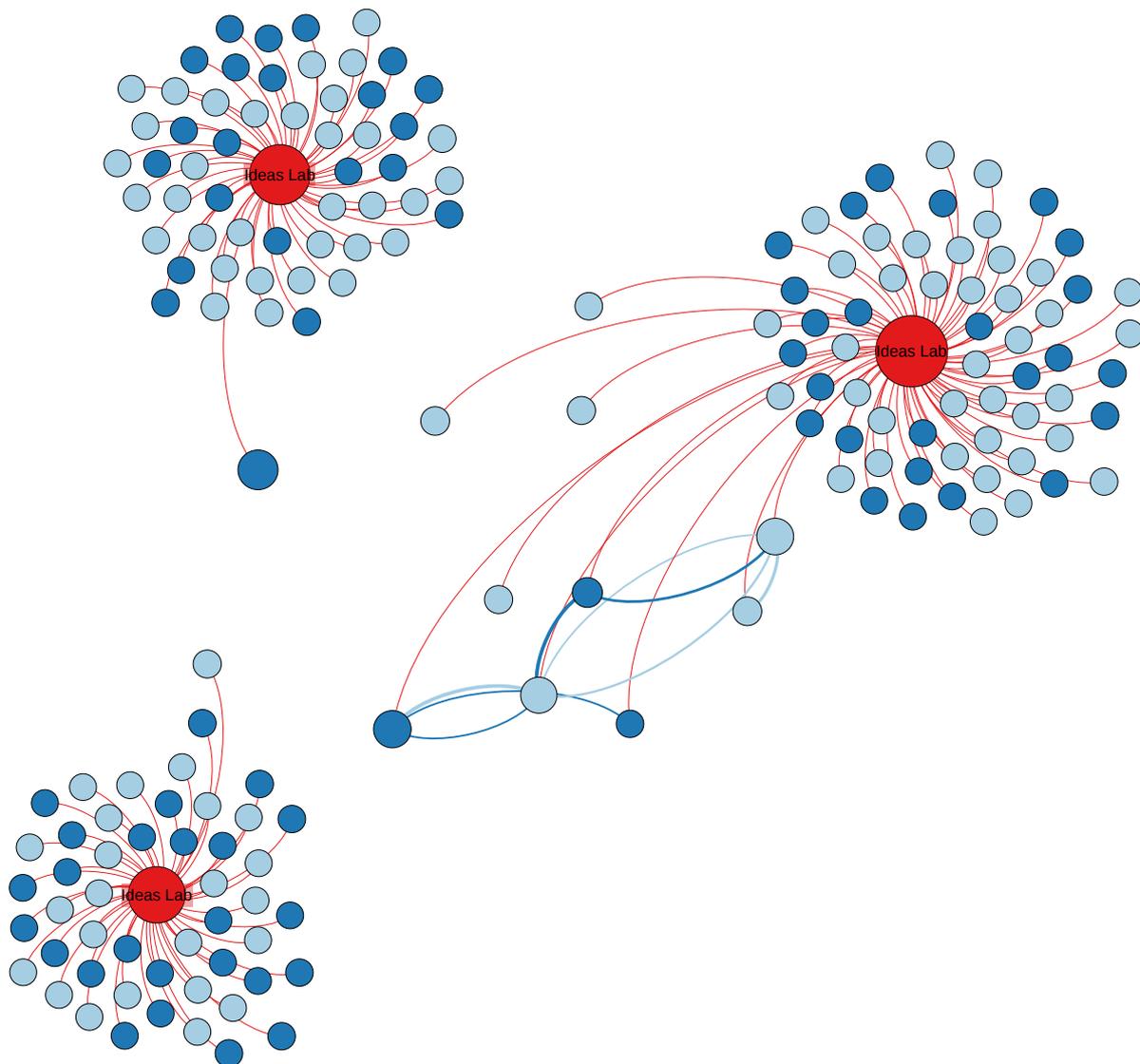


Figure 1: Distribution of participants at Ideas Labs. Red: Ideas Lab. Light Blue Creative Business Partner. Dark Blue Academic Partner

The ideas produced in these preliminary conversations were developed with the REACT creative producers and the partner University research development teams to produce project ideas. In this instance, 26 project proposals emerged.

These proposals are visible in the next diagram, Figure 2 (overleaf), The eight dark green nodes represent those bids awarded £50k Sandbox funding, while the pale green dots represent project proposals and partnerships that were generated as part of the Ideas Lab process but did not become part of the Books & Print Sandbox. Some of these latter bids received production investment from other sources, including partner University innovation schemes and REACT's Feasibility and Prototype funding scheme.

Figure 2 also shows all the agents in the system, including REACT staff, mentors, and contractors. The orange nodes represent members of the REACT team, including freelance business development advisors and PR and legal teams, brought into the Sandbox. The pink nodes denote project mentors from the relevant industry sector brought in to support project development, dark blue again represent academic partners, and pale blue creative business partners.

The pale blue nodes also represent contractors, creatives or research staff brought into a project by the lead partners to deliver their idea. They might be artists, writers, musicians, designers, coders or Research Assistants. The node labels refer to individual participants, for example, A1 is an academic partner, B1 a creative business partner, and C1 and contractor. These individuals are revisited in the next section.

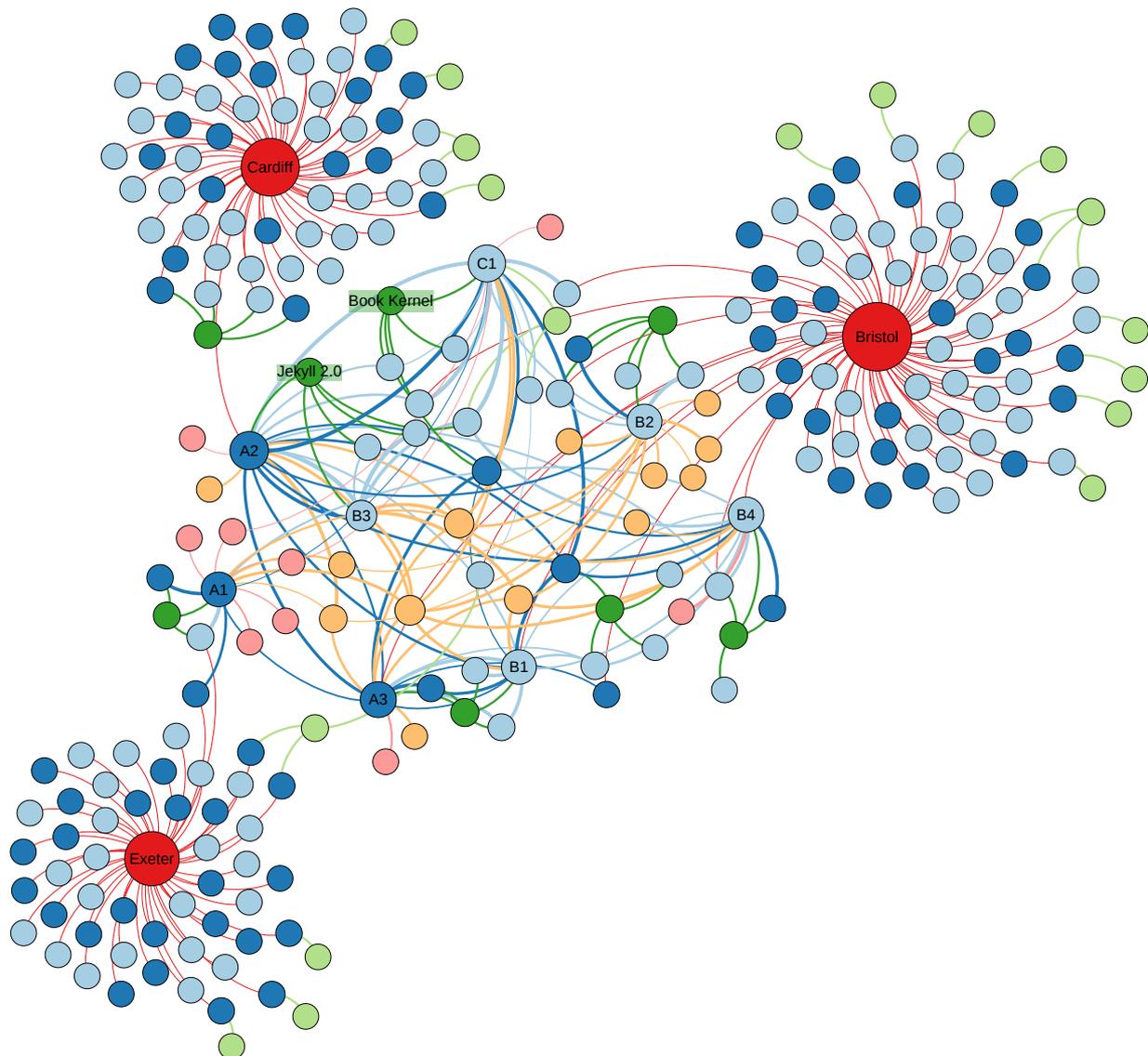


Figure 2: Projects emerging from Ideas Labs. Red: Ideas Labs. Light blue: Creative Businesses and contractors. Dark Blue: Academic Partners. Dark green: Sandbox Funded Projects. Light Green: Non-Sandbox Project Bids. Pink: Mentors. Orange: React Team

The section of interconnected nodes in the middle of Figure 2 (above) represents connections made as part of Sandbox itself, and gives some sense of how the initial collaborations from the Ideas Lab become active in the Sandbox itself.

If we isolate the Sandbox part of the visualisation (see Figure 3) we can start to see the variety of connections being made in more detail. This diagram shows the complexity of interrelationships developed through the three month Sandbox process. The lines connecting the agents here represent the new connections that subjects reported in their interviews.

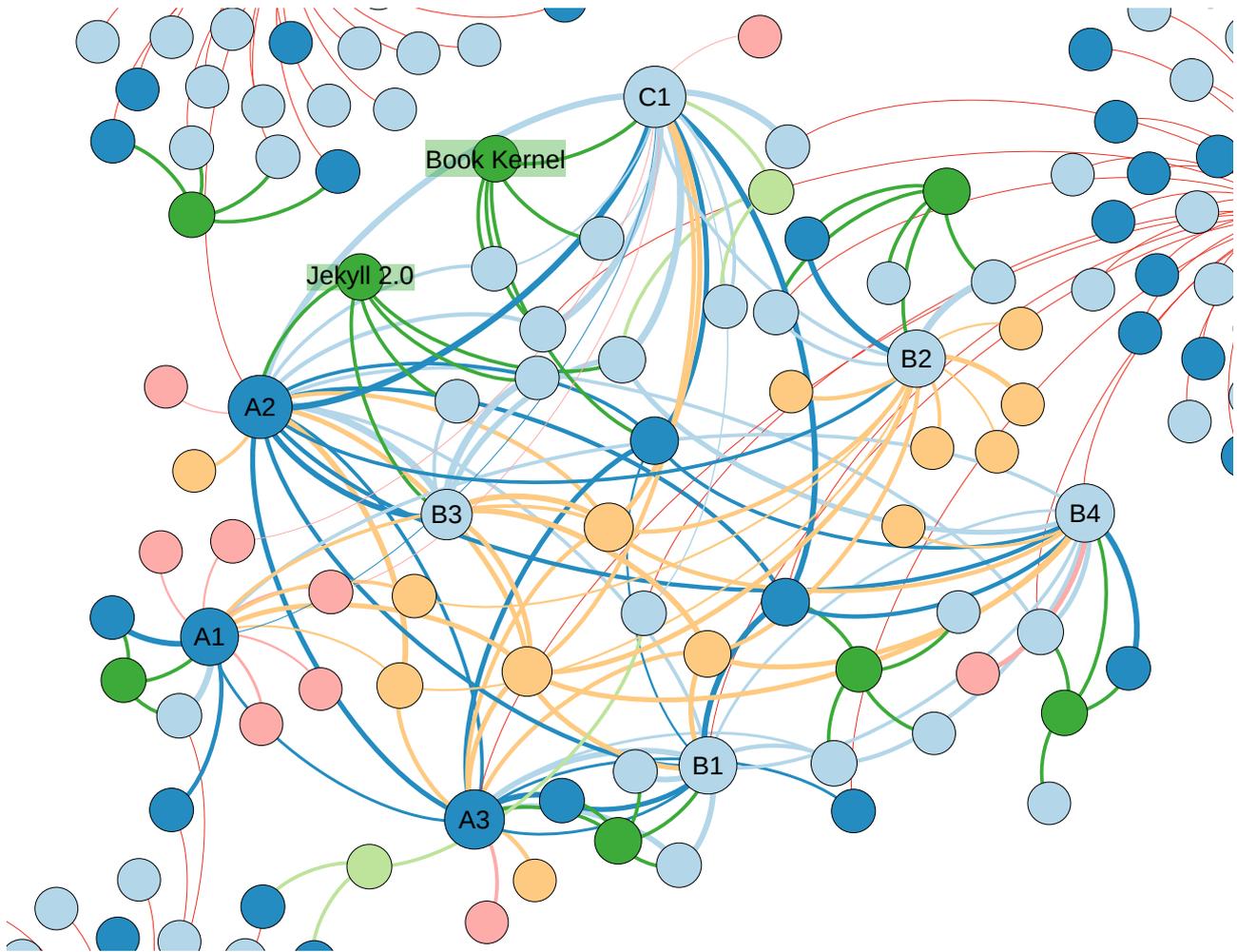


Figure 3: Connections within Books & Print Sandbox Light blue: Creative Businesses and contractors. Dark Blue: Academic Partners. Dark green: Sandbox Funded Projects. Light Green: Non-Sandbox project ideas. Pink: Mentors. Orange: REACT Team

The first thing we can observe in Figure 3 is that the Sandbox created a complex web of interconnections. The interviews reflect an appreciation of the value of this connectivity,

Perhaps what has to be preserved is a sense of family, of a belonging to a process. So the people involved in that come together in relations and act as platforms for further development (Books & Print Sandbox Participant)

There are also more specific accounts of how connectivity produced new relationships and new possibilities, in this case for an academic:

So I've seen lots of opportunities where I can maybe use the networks that I have as well with people, and also forge new networks with people and potential projects or ways forward. So I think (X Creative Business) and I are arranging a meeting for later on this summer to think about collaborations.(...) I think (Y Academic) wants to have a chat with me about (Project) (...) So academics from my institution that I've never met before. So I met (A , B) and various other people. So that's been very good for that as well." (Books & Print Sandbox Participant)

We can also reduce the data in the interviews to a numerical form. Table 1 (overleaf) shows the connection data from seven Sandbox participants. We have simply counted up the number of references participants made to making new connections or to significant working relationships developed in the Sandbox. In the table 'Academics' were lead project partners, 'Producers' are part of the REACT delivery team; 'Creatives' are the lead creative business partner and contractors (including designers, programmers, artists, and writers); 'Mentors' are lead industry figures who attend workshops and offer one to one advice to projects. The final 'Contractor' line is for a writer who came into the process working on a project.

Subject	Connection Total	Academic Connections	Producer Connections	Creative Business Connection	Mentor Connection
Academic 1	16	5	4	6	1
Academic 2	13	5	4	3	1
Academic 3	15	0	5	6	4
Creative 1	10	5	2	3	0
Creative 2	13	4	4	4	1
Creative 3	17	5	10	5	0
Creative 4	8	1	3	4	0
Contractor	16	7	2	5	3

Table 1: connections formed by sample of participants from Books & Print Sandbox

This data is by no means definitive. We need to do more research to discover how many of these connections are new and in how many cases the Sandbox provided the momentum and opportunity for prior connections to be translated into productive collaborations and R&D activities. It may be possible to refine the model so that it takes account of the ways that the Sandbox network grows out of existing networks. We would also like to do more work on what the quality and value of these relationships will be in the long term. However, we do know from both formal interviews and informal conversations that the participants considered all these connections to be a significant and valuable part of the Sandbox experience.

Data Stories

This section considers how we might relate the connections made in Sandbox to narratives of value provided by the participants of the Sandbox. There are some stories in these interconnections that reveal the long-term economic and cultural value of the network process we are operating.

We look here at two examples, one an academic, and the other a creative contractor. Figure 4, overleaf, shows the connections made by the lead academic researcher (dark blue node) as part of the Sandbox project he was leading with his creative partner (B3).

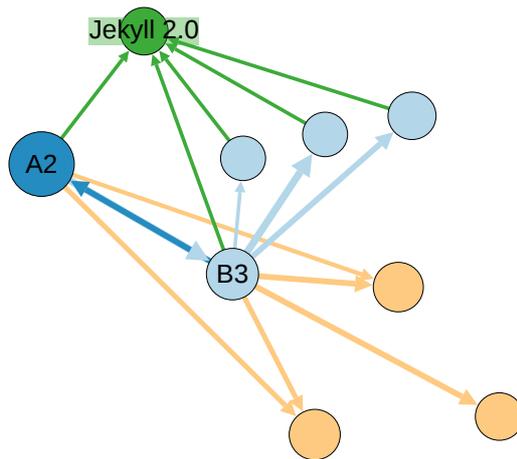


Figure 4: Project Graph 1, Jekyll 2.0: A2 Lead Academic B3 Lead Creative

The diagram shows within the specific project that the academic connected mainly with the lead creative and via that node to three other creative contractors involved with the project. We also see the connections made to REACT staff. However when we look at the connections made by this academic across the whole Sandbox we see a far richer pattern.

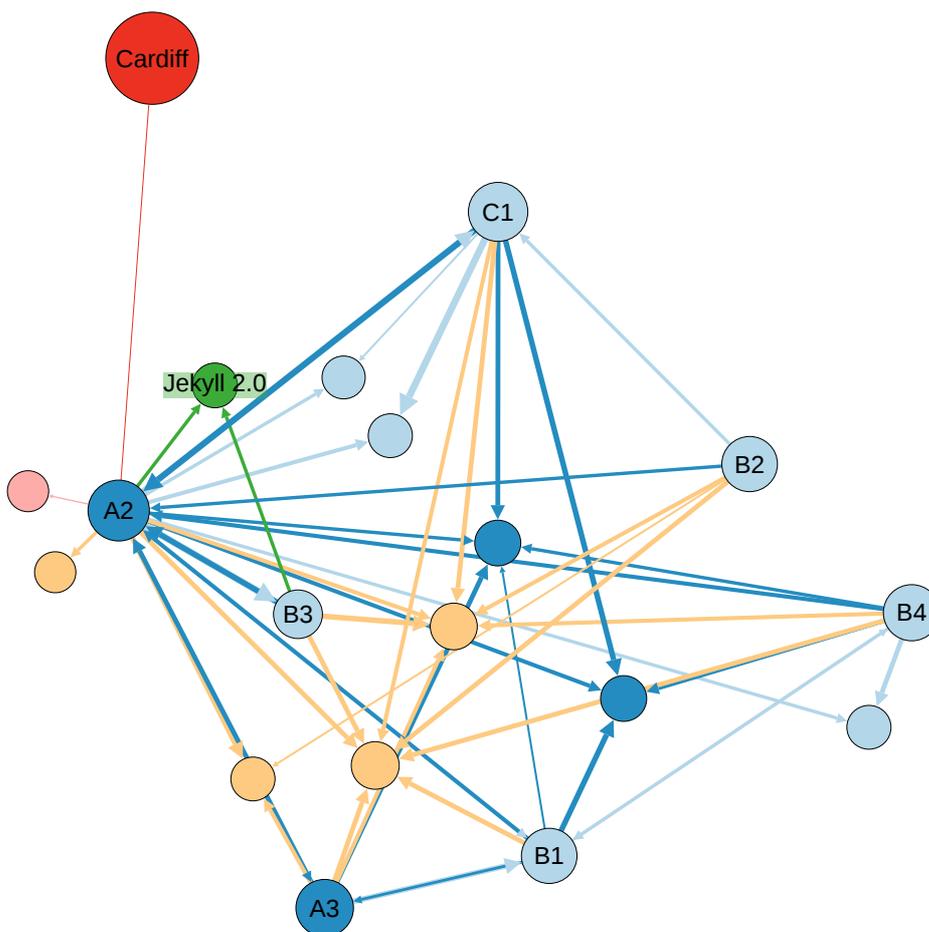


Figure 5: Personal Graph, Academic A2

In this case we can see that the academic has also formed strong relationships with another lead academic (A3), two other academic contractors (researchers as smaller dark blue dots), several creative businesses outside of his particular project (B1, B2, B4) a creative contractor (C1) , producers (Orange) and a mentor (Pink). In particular two of the relationships with creatives (one writer one creative business) are investigating potential for future collaborations,

I'm really interested in fostering links with people from other projects like (Project) and 'I've been talking with (Creative Business) about a collaboration, maybe using things like (Platform developed in Sandbox), so I chatted to [them] and (Academic) about that..' (A2 in interview)

Our second example highlights the benefits for individual creatives, the sole traders who are the freelance glue of the creative economy.

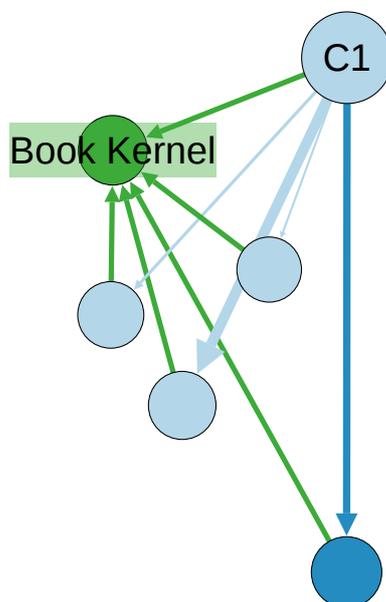


Figure 6: Project Graph: Contractor, C1

The contractor in the Figure 6, above, (C1) is a sole trader who came into Sandbox as an editor and writer to develop a particular project. The graph above shows their connections with the academic and other contractors on their particular project. However, they became a key participant in the whole Sandbox. Their individual connectivity diagram is shown in Figure 7, overleaf.

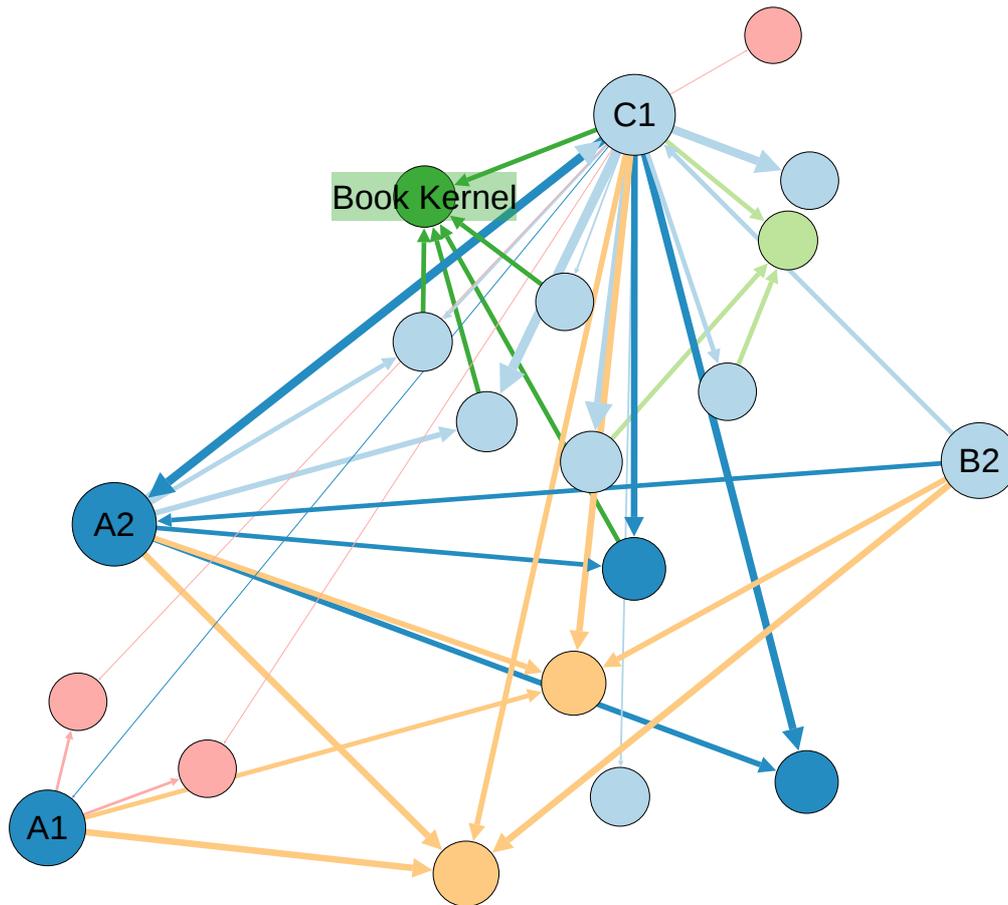


Figure 7: Personal Graph, Contractor, C1

Figure 7 shows how C1 connected with another project, (green) two other academics (dark blue), three other contractors (light blue) and two mentors (pink) and the REACT team (orange). The project that C1 was working in in the Sandbox has launched itself as a business where C1 is the lead producer, and has so far had three commissions: for the Guardian, the BBC and the Arts Council. Each was substantially facilitated by the mentors (Pink) and REACT producers (orange). The contractor has also formed another new business, for a story content delivery app, with another contractor they met in the Sandbox which has won a £3k business development investment. C1 has also been employed as a voice actor by a company met during the Sandbox and has coproduced an exhibition with an academic (A2) from another University that he met in the Sandbox cohort. At the time of writing C1 has also been shortlisted for a major UK wide £30k arts/technology award which they attribute to their Sandbox experience. This illustrates how one sole trader becomes connected through the REACT Sandbox method, being involved in the launch of two microbusinesses and finding freelance creative work through the process.

The sample of data for connectivity above (Table 1), combined with the individual examples from formal qualitative research and informal information gathering, illustrates how our collaborative processes are creating value by brokering new relationships. If we look across the range of projects as a whole in this cohort we see how the values in individual relationships start to scale up. Different projects have so far received £70k of additional development investment; three entirely new services are on their way to market; five new companies have been formed; existing companies have built Sandbox projects into their long term development plans; participants have met with brands and investors; several papers have been given by academics. A web of relations and potential exists where none existed before.

Conclusions

The evidence above suggests that REACT Sandbox is an effective method for mobilising talent and unlocking the value in University research. It aggregates fragmented creative talent and builds networks where participants can locate and explore mutual interests and values with long term potential. Startups, research bids, enhanced businesses and new products and services are all produced through the process. REACT has been able to build on the three previous iterations of Sandbox that iShed had already curated prior to AHRC investment. Effectively, the Hub has bought in an existing methodology devoted to iterative production that is based on 'crowding diversity' in order to achieve its Knowledge Exchange aims.

However, looked at systematically, the 'product' of REACT is actually our alumni and the relationships they sustain. Whilst our *objects* are the new prototypes, products and services that are designed our *aim* is a network of relationships that continue to strengthen the eco system of the regional creative economy. The evidence above suggests that the methods we have been adapting and deploying here could have a role to play in addressing the problem of the 'hard to reach' creative microbusiness sector. Curating connectivity by 'crowding diversity' is surely one way to aggregate fragmentary creative talent into a critical mass that can create sustained impact. This is a preliminary attempt at using social network analysis to visualise the way that we think value constellations in the creative economy can operate.

We hope to conduct a more rigorous analysis in the future building on what we have learnt from this initial visualisation. In our future research for 2015 we would like to reproduce this preliminary network analysis with the entire REACT cohort. This would give us the opportunity to improve the design of the study by explicitly targeting connectivity data and recruit participants for a longitudinal study. It would also give us the opportunity to look more closely at those aspects of the system that are less effective or more problematic for participants.

In the medium term we want to extend this research to the post Sandbox stage of network development. Our aim is to explore how cohort based programmes and peer to peer learning can be used to take our successful alumni projects to the next stage of research or business success. This research will investigate how our methodologies can be applied to the creative microbusiness sector with a view to developing knowledge exchange and project support strategies aimed at producing networks that have long term benefits and long term sustainability.

A longer study over 3-5 years would allow us to really understand the value of our approach as the downstream effects of being part of the network continue to have an impact.

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