For what it's worth: explorations into early-stage IP

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Abstract

This paper critically reflects on a Scottish innovation initiative delivered by a national consortium of both academic and non-academic organisations and the strategies adopted towards the propertisation of ideational content in the development of new entrepreneurial ventures. Appropriating design as a catalyst for creativity, innovation and economic growth, the initiative centres around the nurturing of knowledge exchange between different audiences from academia, industry and design in crafting new opportunities for commercialisation. Preliminary findings suggest that in the early stages of entrepreneurial venturing intellectual property (IP) and the formal attachment of legal rights is rarely a concern. Instead, the paper argues, the transformation of ideas into proprietary goods is achieved through discursive practices of differentiation, enabled through specialist knowledge and the competent arrangement of value fragments, in a gradual movement towards the market arena.

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Introduction

The capacity of a nation to create and innovate and move beyond its current state is vital to its economic success and social prosperity. This is particularly true for the advanced economies operating closely at the forefront of technological development, whose sustained success is more and more dependent on "improvements in multi-factor productivity" (OECD, 2012). The dynamics of a global, new technology-enabled market place and a gradual increase in time-to-market speed, have given rise to an ever more pressing quest for new ideas. Ideas that not only satisfy the inherently human desire for improvement and intellectual advancement but beyond allow for the exploitation of economic opportunity.

The rise of the information society and patent-era in the last quarter of the twentieth century (Granstrand, 2005), has led to the heightened importance of knowledge-based capital (KBC) as a key driver of innovation-based growth (Bosworth, 2006, p. 4). According to the OECD (2012), firms in some of its member countries, such as Sweden, the United States and the United Kingdom, now spend as much or even more on non-physical assets as on those with physical embodiment. Such shifts in resource allocation are indicative of substantial economic restructuring and institutional transformation. Emerging economies such as India and Brazil are contributing to this trend, claiming an increasing share of global investment in innovation and addressing the stimulation of KBC investment as an issue of central political concern (OECD, 2012). Growing with investment in non-physical assets is the interest in aspects of their legal protection. While long accused for its disregard of intellectual property, progressively moving towards an innovation-oriented society China is now scaling up its measures to ensure the protection of its own economic values. The OECD (2012) differentiates between three types of KBC: computerised information (software and databases), innovative property (patents, copyrights, designs and trademarks) and economic competencies (including brand equity, firm-specific human capital, networks joining people and institutions, and organisational know-how that increases enterprise efficiency). How to shape and update the policy and associated legal frameworks across levels of governmental intervention to account for such changes and help to incentivise KBC investment has been the subject of wide ranging political debate.

Against this background one may appreciate the distinct challenges faced by the Scottish economy that over the past three decades has consistently underperformed in terms of growth relative to both the UK and other small European countries, including Norway, Finland, Iceland, Ireland and Denmark (The Scottish Government, 2007). Seen as particularly problematic in light of the country's poor productivity performance, are the low levels of business R&D (not taking into account product and service design innovation), the weak links between Scotland's research base and business innovation as well as the limited number of (high-tech) new venture formations (The Scottish Government, 2007).

It is precisely the national need for entrepreneurial activity, innovation-based growth and the multiplication of innovative property that has formed the rationale for the design-led initiative considered in this paper. The commercialisation of ideas is a central aim that is hoped to be achieved through the infusion of design into the process of business innovation and the purposeful integration of university research and industry knowledge. In scrutiny here is the fabricated innovation process that lies at the heart of the initiative and rests upon a variation of the research-focused IDEAS Factory Sandpit-model conceived by the UK Engineering and Physical Sciences Research Council (2012). The sandpit, as described by the EPSRC (2012), is a mentored, residential interactive workshop, engaging a multidisciplinary group of researchers and potential research beneficiaries (20-30 people in total) with the concept of

"creative, intellectual play" to elicit new thinking around specific research problems and translate the outcomes into "ground-breaking proposals"; proposals that are then considered for potential funding. The principal idea of the Sandpit is to "inject innovation into contemporary science" (ibid.). Focusing on the workshop model employed by the initiate portrayed here, this paper seeks to provide insight into the functioning of this newly adopted innovation mechanism and examine the extent to which it contributes to the creation of innovative property and intellectual property rights (IPR) enabling businesses.

Perspectives on intellectual property, innovation and design

Economic perspectives on IP and IPRs

IPRs, as proposed by scholars like (Lynn, 1998) and similarly (Brooking, 1997), form part of the catalogue of organisational capital that in turn may be subsumed under the heading of intellectual capital (IC). The latter is commonly differentiated from the concept of intangible assets (IA) on the grounds of its narrower focus on enterprise-level IC and apart from IPRs includes human, relational as well as structural capital. According to Bosworth & Webster (2006), IPRs are considered from an economic perspective for mainly two reasons: first, as an indicator or approximation of a firm's level of creative activity, and secondly, as a measure of ownership regarding the extent to which a firm has exclusive control over its creative or intellectual outputs. The appropriability of monopoly rights, Bosworth & Webster emphasise, is "crucial" in as far as it determines the ability of a firm to capitalise on its R&D expenditures in the form of profits and/or capital gains (2006, p. 89). The calibration of IPR systems is therefore tied to the question whether or not companies are able to generate sufficient returns on their efforts to create new products, processes and so forth (Granstrand, 2005). In providing a protected base for the commercialisation of ideas, IPRs, such as copyright, designs, patents and trademarks, constitute an important ingredient of economic activity. While inventions may still have value to be capitalised on by being first to market, if protected through some form of IPR it is assumed to be considerably higher (Bosworth, 2006). The value of IPRs is linked to the appropriation of monopoly rights on the one hand and the stimulation of new thinking and innovation on the other. Market dynamics usually imply that "monopoly profits" (Bosworth, 2006, p. 7) are time limited and at risk to be exhausted by the invention of similar or superior products, services or processes. With the availability of new technologies, we have seen a noticeable reduction in the time lag between invention and innovation or rather an acceleration of the time-to-market speed (Fagerberg, 2005, p. 5). A firm's ability to generate profit is therefore more and more associated with its innovative capacity to keep competitors at bay. The importance of controlling the imitation strategies of other market players is emphasised by Laursen and Slater (2005), who acknowledge that there are limits to this. Two different routes are formulated: a 'legal strategy' and a 'first mover strategy'. Both appropriability strategies, they explain, "help to innovate performance" (Laursen & Salter, 2005, pp. 19-20). This is due to the increased managerial attention to aspects of appropriation in the development of a firm's corporate and innovation strategies. It is important to mention though overemphasis on either of those, but in particular on legal appropriability strategies, "can have detrimental consequences for innovation performance" (ibid.).

IP and innovation

The idea of promoting creation and innovation through "propertisation" (Straus, 2012) and IPR regimes that allow for exerting exclusive rights over the use of new products of

intellectual or creative activity is central to economic policy-making both in advanced and emerging economies. It is through (time limited) prevention of others from exploiting the intellectual property of its owner that the development of different and possibly superior products, services or processes is sought to be encouraged (Raustiala & Sprigman, 2006). The pro-patent or pro-IP era emerged in the last quarter of the twentieth century in the context of the gradual movement away from labour-intensive towards knowledge- or innovation-based economies (Granstrand, 2005, p. 266). Characterised, as indicated above, by a significant increase in intellectual capital investment and intensified competition, the transition nurtured global activism from industrialised countries, and especially from the US, for stronger and worldwide effective IPR systems. The World Trade Organization (WTO) as well as the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) are associated outcomes of these actions.

Such emphasis on IPR regimes in light of the ambiguous economic effects of IP is met with scepticism by authors criticising the detrimental consequences of IP for competition and the dissemination of knowledge (Granstrand, 2005, p. 274). Boldrine and Levine (2008) are particularly explicit in their expression of disagreement with the general idea of IP as "a cure, a powerful and beneficial medicine alleviating the innovative impotence of competitive markets." The argument being that markets are hardly as ineffective in provoking "innovational enthusiasm" and the production of new goods than governmental intervention (through IPRs and thus the imposition of intellectual monopoly) would suggest. Quite to the contrary they argue that it is in the absence of intellectual monopolies that competition is fierce and thus the need for creativity and innovative activity high. Whilst acknowledging that some form of compensation might be necessary to incentivise new venturing, they question the inescapability of intellectual monopolies and suggest that rewards can and should be granted in ways such that they rather benefit society on the whole. The lack of evidence for a positive effect of intellectual monopoly on creativity and innovation that followed their dedicated study of the economics of IP across time and space makes Boldrine and Levine conclude that intellectual property is "an unnecessary evil" (2008, p. 11).

Innovation and design

The value-adding potential of design released in the business process has been known to management scholars for decades. Already in 1984 Kotler & Rath heralded the capacity of design as a strategic tool in the realisation of sustainable competitive advantage. As pointed out by Green et al. (2013, p. 268) "the role of design in innovation and new product development is now firmly acknowledged within the practitioner, policy and academic communities". Notwithstanding this, its utilisation as an integral component in the developmental processes of new products, services and processes remains underexploited, or as Goffin and Michele (2010, p. 29) state: "most companies fail to reap the full benefits of design." Survey evidence summarised by the UK Department of Trade and Industry (2005) shows that whilst 41 per cent of manufacturers and still 6 per cent of businesses in trade and leisure acknowledge design as integral part of their businesses, the majority of UK firms only grants it a limited role – if at all.

Given the conceptual ambiguity surrounding the term 'design', it seems important to create some clarity as to its meanings and how we might understand it in the context of this paper. The multifaceted nature of design renders the quest for univocality a doubtful and arguably unrealistic task to accomplish (Ulrich, 2011). Not surprisingly, foundationalist attempts to define the universal grounds of design have not gone without controversy. In *The Sciences of*

the Artificial (1996 [1969]) Herbert Simon made an early call for the development of an encompassing body of research on the science of design. Suggesting that "everyone designs who devises courses of action aimed at changing existing situations into preferred ones," he nurtured the idea of design playing a key role in professional activity, be it in the field of architecture, business, education, law or medicine. Design, in so far, might be understood as the "conception and planning of the artificial" (Buchanan, 1992), the production of knowledge about what "might be" (Liedka, 2004) through processes shaped by the very nature of the design problem itself; the problem often being indeterminate (ill-defined, open ended and confusing) and as such denying linear techniques of analysis, exploration and problem solving. Such "wicked problems", as Rittel (1972) labelled them, are speculated to be the result of the "universal scope" of design that requires "[the discovery or invention of] a particular subject out of the problems and issues of specific circumstances" (Buchanan, 1992, p. 16). The process that is typically described to support such exploratory practices is one defined by an iterative, emergent and recursive nature that alternates between problem definition and solution and the various steps in between (inspiration, ideation and implementation) (Lawson, 2006).

Design as a process of inquiry, centred around the generation of ideas applied to solve problems of social and economic importance, has gained momentum over the past decades and arguably led to its recognition as a key function of innovation and international competitiveness (Andrews & Criscuolo, 2013). In the 2005 Economic Paper on *Creativity, Design and Business Performance* the UK Department of Trade and Industry (2005) states that "[t]he ability to generate a diverse set of business options through new ideas is a central feature of innovation in all firms and, as such, is central to sustained economic growth." Consequently, in its capacity to drive new thinking, design is recognised as "an important competitive tool for firms in many sectors", acknowledging "design activities can take many forms across those different sectors" (ibid.)

An innovation initiative

The initiative in this paper is an examination of design as a catalyst for innovation, entrepreneurial activity and economic growth in Scotland. Engaging audiences from industry and academia, it seeks to develop a model of design-infused knowledge exchange that promotes thinking around complex issues of social importance and the creation of new opportunities for commercialisation across sectors traditionally distant to design, specifically Wellbeing, Food, Sport, Rural Economies and ICT. The initiative recognises the increasingly pervasive role of design in the development of products, processes and services, and its growing status as a reference and intellectual impetus to business and policy-makers. Examined more closely is the capacity to which design may serve as *strategic tool* and enabling capacity in the development and realisation of marketable ideas. The idea of using design a strategy tool is by no means new. Already in 1984 Kotler & Rath herald that "[d]esign is a potent strategic tool that companies can use to gain a sustainable competitive advantage. Yet most companies neglect design as a strategy tool. What they don't realize is that good design can enhance products, environment, communications, and corporate identity." Emphasised is the role of design as a medium of reflection on important issues and mechanism to try and explore ideas beyond considerations of the aesthetic. Design is conceptualised not as a service, a discretionary item or add-on but as a force that transforms organisational thinking and acting and that sediments as an integral component of management practice.

At the heart of the initiative lies an intense three-day innovation workshop that takes inspiration from the Sandpit-model as introduced above. Shaped through design methodologies, the workshops are set to engage with a selection of themes and issues previously identified through scoping work undertaken by members of the academic consortium in collaboration with experts from the specific sectors. Brought together are people that fall in the brackets of entrepreneurs, academics, designers and indeed those that do not match any of those categories (wildcards). In the context of the workshops and beyond designers – for the purpose of the project defined as those that make a living of their practice – are ascribed a central role in the development of ideas, the creation of concepts as well as their translation into prototypes. Nurturing the exchange of knowledge and experience through facilitation and the utilisation of design thinking and methods, the initiative seeks to burrow into the formation of transformative solutions. The aspiration is for new ideas for each of the sectors identified. In order to ensure their development to a marketable stage, prototyping is supported with up to £20,000 and a range of support services.

The focal areas of the initiative – wellbeing, food, sport, information and communication as well as rural economies – have been extracted from Scottish policy documents and may be understood as operational fields of particular social and economic importance. These composites, somewhat unvaryingly referred to as sectors, were defined to reflect not only specific terrains of economic activity across standard industrial classifications (in the case of the food sector, for instance, the initiative engages with various audiences from food production to support services) but give prominence to business domains scarcely experienced in the strategic utilisation of design. Bringing design into service of perpetual innovation and new business development, the initiative is an examination of design in its capacity to enable economic development through increased entrepreneurial activity and greater market responsiveness.

The data

Tracing the process from ideation to monetisation, data are collected in phases, from idea generation (centred around sandpit-inspired, intense three-day innovation workshops), to funding, to prototyping and business development. Subject to this study, specifically, is the empirical material gathered in the post-workshop phase that provides insight into the dealings with early-stage IP, the extent to which and how it features at the conceptual stage of development as well as the practices through which the ideational content produced during the workshops is being propertised in the absence of any legal attachments. Following an ethnographic research mode, data collection throughout the different phases relies on observations and interviews with the former being written up as fieldnotes and the latter being audio-recorded and transcribed. The interviews with individual team members of each project are conducted roughly on a three-monthly basis, depending on the progression of each project, and last between 45 and 60 minutes each. At the time of writing, observations took place at six workshops and five funding panel meetings; six grant-funded projects are being followed and fifteen interviews were conducted. The material discussed in this paper draws upon the post-workshop interviews.

As members of the academic consortium, the authors of this paper are to acknowledge and specify their involvement with the production and running of the workshops they later went to study. As a general remark it seems important to emphasise, that it was and still is the authors' unique responsibility in the context of the initiative to study the processes from ideation to monetisation with a focus on the conception of value and broader issues of IP.

Although involved in the composition of the process, the authors are not actively involved in the realisation of the workshops nor the management of the post-workshop processes. Instead, their primary task is to collect data and develop an analytical focus that engages with the five sectors in scrutiny.

Explorations into the idea space

For the purpose of a general appreciation of the nature of the projects, they were classified according to different types of innovation. Referring to Schumpeter's (1934) relative broad innovation concept (Drejer, 2004), five innovative strategies might be differentiated: new goods, new markets, new methods of production, new sources of supply, and new ways to organise business (industrial reorganisation). Loosely applying his classification scheme, we can see that the majority of projects developed thus far settles down in the product/service innovation bracket, with only two concepts (NV2 and NV4) focusing on the advancement / reconfiguration of existing distribution processes, specifically the distribution of low sugar products and craft beer.

Table 1: Synopsis of grant funded new ventures

Sector	New Venture	Type of innovation	Project Description
Wellbeing	NV1	Product/Service (app-based)	Health monitoring platform that provides integrated patient information sourced from existing healthcare systems to enable self-monitoring and online-based patient consultation. Project discontinued.
Wellbeing	NV2	Process (physical)	Shop concept based on the distribution of low sugar products and related informational / educational services (health checks, dietary advice, etc.).
Wellbeing	NV3	Product/Service (app-based)	Till receipt that documents the dietary quality for shopping purchases in conjunction with a website that provides relevant information on how to improve shopping habits. Project discontinued.
Food	NV4	Process (online / physical)	Online sales platform that seeks to improve and facilitate the distribution and discovery of craft beer; delivered monthly to the customer's door is a selection of craft beers from microbreweries in the UK, along with information about the brewery behind it.
Rural Economies	NV5	Product/Service (physical)	Scottish woollen bedding products marketed with an emphasis on provenance and the health-enhancing qualities of wool.

	NV6	Product/Service (app-based)	A mobile phone application that enables intensified interaction between a product and its user through augmented reality and the weaving of stories through both producer and user.
Sport	NV7	Product/Service (app-based)	Mobile game designed to motivate engagement with the outdoors through means of augmented reality.
ICT	NV8	Product/Service (app-based)	A mobile device application designed to engage communities in the development of a positive self-image through means of a digital scrapbook.

Noticeable is a particular concern of the projects with social rather than technological or commercial problems. A lot of groups were found gravitating towards what one participant called the "more moral issues of the brief". For them it was about "having an idea that could really solve the problem first and leaving the commercial aspects to be tacked on to [that]" [NV3]. Having to retrofit the business model into a hypothetically good solution that might address the 'moral issue' is where some participants saw the problem lying with the whole concept, challenging the notion of a (commercially) viable idea. The themes of the workshops were often interpreted in a way that led many groups down a social enterprise route with varying reliance on external / governmental funding.

Opportunity recognition in the context of the initiative takes place within the discursive space of the workshop, compromised by the rules set out, the themes provided, the timing and deterministic nature of activities, and the funnelling of ideas along the way. The course of inquiry is shaped by the agency of the process and the methods employed. As emphasised by one of the interviewees, it was not the perceived value of the idea (be it in social or economic terms) that prompted its course of development but the controlling force and mundanity of time constraints: "That was the only reason why we settled on the idea, well, it was the only reason why I settled on the idea. […] We had a few ideas and I felt that the idea was okay but I was not convinced by it and I felt that there was probably something a lot better that we could be doing than this but we had to come to a conclusion by a certain time." [NV3] The valuation of ideas was further influenced by questions concerning the extent to which it could be transformed into something adequate for presentation: "Out of the options that were there, this is the one that I though we had a better chance of making work insofar as the next stage was to do a presentation on it. […] The whole point of the presentation was to make it something that was sustainable and commercial and it was that element of it that concerned me. I saw that the idea was good but I had not fixed in my mind what the business model for that would be. Therefore I did not see it as a flyer basically." [NV3] The development of an economic rationale that would explain how value is being created, delivered and captured has indeed proven difficult for many of the teams that emerged from the workshops. Nonetheless, the commercialisation aspect and the prospect of potentially having some ownership over IP was important for some not just in terms of an incentive to get involved in the workshops but also to commit themselves to certain ideas: "My background is play so if we had done a board game or a sport or anything I would have been happy it would not have really bothered me apart from we might not have been able to get any IP around it or anything" (NV7). In fact, one interviewee suggested that the value of their idea, rather than being something inherent, is derived and entwined with its status of legal protection: "We are aware that it is a good idea

but it does not have value really without protection" (NV3). Across the project, however, such instrumental view on IP is a rarity as will become clearer from the following section.

The propertisation of ideational content

This research engages with IP at a premature or early stage of development. That is, IP is addressed in a situation in which its content is often vague and potential for exploitation unclear (Parr & Smith, 2005, p. 477). With the exception of NV4 that has successfully been launched, at the time of writing all of the incipient businesses were pursuing ideas to the proof of concept stage. The extent to which an idea involved exploitable IP was barely of concern to any of the groups except for NV3. What mattered was the creation of a solid value proposition and corroborating the viability of the business. In fact identifying what it was that might be protectable through means of IPRs has proven to be difficult for most of the teams as is indicated by the following comment: "I'm struggling to see where the real inner actual property is of NV4 because of course there is something in there but I don't know a lot about it." Rather than something singular, property is suggested to be a composite or a bundle of things that in their entirety make up the company's intellectual property: "Okay, we have the name, we have the domain name, we have various domains connected to that, the brand, the photography, the way that we portray ourselves online, these kind of things. That is our intellectual property" (NV4). A sense of property is further expressed with regards to the underlying business model and the way they go about doing business and engage with commercial partners and customers. The extent to which legal rights can be attached to that, however, is unclear: "Can that be protected? Is that intellectual property? I'm not very sure, you know, if somebody starts up tomorrow and they say I know what NV4 are doing, this is how you do it and they start doing it, I don't think that there is anything I can do to stop that. I guess we have to be first and the best." It is what Schumpeter (1934) has described as the need to move quickly, emphasising that innovation requires vision and leadership in order to ensure a swift response to new market opportunities and take advantage from the prevalence of inertia, i.e. organisations' resistance to new ways. It is worth noting that despite the admitted lack of knowledge of IP, NV4 also expresses financial concerns, arguing that before spending money on things like trademarks, they want to be sure that there was a business and that it was actually worthwhile. A sense of prioritisation is given in the following account: "The role of IP in our business is about our website, our branding, our photography, the way we talk on the website, and I think it is quite important to protect that. But ultimately it doesn't keep me up at night. What keeps you up at night is making sure that people are getting their beer, it hasn't broken, we are keeping the breweries happy and we can be profitable, how we can expand into other markets beyond the UK as well. So theses are the things that I'm focused on" (NV4).

There is further a suggestion of the strength and plausibility of the value proposition working as form of protection. Strikingly, imitation strategies are sought to be controlled not by the appropriation of IPRs – in fact, their value is being questioned on the same grounds that they are held up as being important, namely the provocation of companies to invent around existing products – but through a narrative of value creation constructed around the particular product: "The IP is all around smoke and mirrors and pulling the wool over. It is around actually doing enough work and making a potential customer believe that there is some black magic behind it that would take them a long time to figure out. I don't think that any protection or any kind of legal thing would really have any standing. I think it will be around brinkmanship when you are starting in front of somebody saying, you know, this took us one year to develop and we have got some of the best guys in the business and even if you

wanted, you wouldn't, and why would you want to because we are going to offer you such as good deal on this. It is more around that sales thing and them having enough respect for what you have created that they would not just walk off it. It is more about, as I said, doing enough work that other people recognise that for its actual value and for them to get to the same level they would have to do that work themselves and pay for it, which is going to cost them a lot of money and I know that because in here we have had to design around other people's patents." [NV3] This wordy comment resonates with the view articulated by another participant: "What I realise being in this world is that there are millions of ideas out there and they are really good ones. But it is not about the idea itself it is about the realization of that idea. So unless you want to, well they could take the bare bones of the concept and that is all everyone is going to be able to get with the actual detail and that is never going to be released for ages because we have not worked it ourselves even, so sure you can have the idea but you still have to put a lot of time, energy and money to actually turn that into something" (NV7).

Finally, an important element in the process of propertisation is the exploitation of expert knowledge as is brought home in the following statement: "I have created a big document, a formula which refers to each of the phases, and on top of that I have mapped all of the different things that you need to get right in each of those spaces. All of that stuff is a bit gold because no-one else would necessarily know how to do those bits right. And so I am unusual in a sense that my speciality was emotion design and so all my psychology and background in emotion has been bought into that and 'go, okay that needs to be there, that needs to be there'. And so someone could take the broad strokes and try to make a copy but they would not have the sophistication necessary or maybe they would but in a different way so I don't think that it is something that I can massively protect in that way" (NV7). Keeping quiet, however, is hardly an option. While it may work as a modus operandi during the conceptual stage, the translation of ideas into viable business propositions typically requires active engagement with external parties.

Conclusion

In this paper attention was drawn to the early, conceptual stage of new venture formation and IP. Subjected to inquiry was an innovation initiative intended to stimulate new thinking around complex issues in the areas wellbeing, food, sport, rural economies and ICT, and the development of new entrepreneurial ventures through the strategic utilisation of design. Reporting on the projects generated thus far, it was found that the range of innovation was limited and many of the projects motivated by a social cause rendering aspects of commercialisation being retrofitted. New ideas, by and large, were generated not by attempting to invent around existing IP but by trying to address specific needs that were carved out in the discursive space of the workshop.

Findings suggest that in the early stages of entrepreneurial venturing intellectual property (IP) and the formal attachment of legal rights is rarely a concern. Instead, the transformation of ideas into proprietary goods appears to be achieved through discursive practices of differentiation, enabled through specialist knowledge and the competent arrangement of value fragments, in a gradual movement towards the market arena.

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