# How does an old firm learn new tricks? A material account of entrepreneurial opportunity

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## Abstract

Opportunity has become the central concept in entrepreneurship. Discovery focused accounts assume opportunity to be objective and to exist independently of the entrepreneur. Process-focused studies critique such notions. We contribute to process-based conceptions of entrepreneurship with an account of opportunity as historically specific and materially embedded. Drawing on Latour we argue that opportunities are constituted through dense material networks. We argue that opportunity and entrepreneurship are mutually constitutive, and emphasise that the entrepreneur shares agency with a heterogeneous array of ‘actants’ in the network of opportunity. We make use of this framework in a historical analysis of a large family agribusiness in Honduras, illustrating the historically dependent nature of entrepreneurial process and the role that the material plays in it.

## Keywords

Entrepreneur, opportunity, Honduras, family business, Latour, actor-network

## Introduction

Business history aims to re-engage with the entrepreneurship agenda. Wadhwani summarises the current position: ‘History, one could conclude from much of today’s scholarship, is at best marginal to our understanding of entrepreneurship.’[[1]](#endnote-1) Although ‘historical reasoning has played a more profound role in the development of modern conceptions than most researchers in the field recognize’[[2]](#endnote-2), recent entrepreneurship research rarely considers historical context. The dominant economic school in entrepreneurship focuses instead on three sets of questions, centred on opportunity: why, when and how do opportunities come into existence; why, when and how do some people and not others discover and exploit opportunities; and why, when and how different actions are used to exploit opportunities.[[3]](#endnote-3) Such an approach presupposes an initial independence between opportunity, entrepreneur and resources, and sets out to understand how the entrepreneur combinesthese factors into a new venture: ‘The entrepreneurial process begins with the perception of opportunities, or situations in which resources can be combined at a potential profit. Alert individuals, called entrepreneurs, discover these opportunities, and develop ideas for how to pursue them... These individuals then obtain the resources, design organizations or other modes of opportunity exploitation, and develop a strategy to exploit the opportunity’.[[4]](#endnote-4) The opportunity exploitation (or discovery) school has, however, been increasingly critiqued in what may loosely be termed ‘process-focused’ literatures,[[5]](#endnote-5) although these two approaches may more accurately be considered as formalist and substantive accounts of entrepreneurial action[[6]](#endnote-6). Economic accounts of entrepreneurial discovery are formal in nature and focus, via a series of ‘taming assumptions’, on how entrepreneurs, *qua* economic agents, should act in certain circumstances.[[7]](#endnote-7) The unifying principle is information: the opportunity itself is of little interest to formalist scholars, becoming a metaphor for economic behaviour easily reducible to the exogenous realm of the entrepreneurial imagination.[[8]](#endnote-8)

Those entrepreneurship researchers who stand outside the formalist paradigm approach entrepreneurial behaviour and the identification and exploitation of opportunities in a substantive manner, examining what entrepreneurs actually do in the complex and unpredictable economic arenas in which they operate.[[9]](#endnote-9) A small number of studies have examined this in a historical context.[[10]](#endnote-10) Of particular relevance, Sarasvathy’s distinction between causation and effectuation has reshaped studies of business planning, and much entrepreneurship teaching.[[11]](#endnote-11)

The formalist programme, with its drive to abstraction and generalisation, is notable for its lack of historicism, a tendency that may lead, at best, to the lessening of the explanatory power of any theory, and at worst to misattribution and error.[[12]](#endnote-12) In keeping with the aims of this special issue, we set out a theory of entrepreneurial opportunity located in historical and material specificity. Substantive approaches (notably effectuation) have developed a powerful alternative to the economic abstractions of discovery focused entrepreneurship research, arguing that entrepreneurial qualities, resources and possibilities for action are co-constituting. We make use of an actor-network approach to develop this argument by emphasising the importance of material, agency-filled ‘actants’, and to explore the implications for entrepreneurial agency.[[13]](#endnote-13) We argue that opportunities are constituted *de novo* by dense and changing material networks of which the entrepreneur is a part. In recognising the situated nature of entrepreneurial opportunity and the dispersion of entrepreneurial agency, we offer a balanced historical method, capable of resisting heroic accounts of entrepreneurial action in favour of the accidental and the contingent.[[14]](#endnote-14)

Our study of a large-scale agricultural business in Honduras, over a period of 100 years, shows how this process of co-constitution takes place, where ‘entrepreneurial agency’ is contested and negotiated, not only by market demand, but also by unforeseen events, rules and regulations, and a variety of human and non-human actants. Opportunities for this family business are as dependent on local climate and fauna as they are on resources, the entrepreneur(s) or market demand. It is precisely our argument that an entrepreneurial opportunity is intelligible only within the specific context that it occurs. A lack of understanding of historical context is likely to lead to the deliberate creation of general theories, focusing on the essential and universal elements of entrepreneurial behaviour: ‘The limits and problems of such general theories usually lie in the great level of abstraction necessary... these general propositions explain relatively little when they are held up against specific, grounded entrepreneurial cases or situations in context.’[[15]](#endnote-15)

We seek to develop existing frameworks or entrepreneurial process by introducing the concept of material agency. We begin by discussing existing literatures of opportunity in entrepreneurship research, and then set out a theoretical framework developed from the writings of Bruno Latour.[[16]](#endnote-16) We make use of a detailed historical case study of ‘La Empalizada’, a large agricultural business in Honduras, owned and managed by the Lobo family across three generations. The historical account explains how opportunities arose for this entrepreneurial firm. In our analysis, we present first of all a ‘mainstream’ discovery-focused account and then augment this history with a discussion of materially situated opportunity. Our discussion emphasises the material embeddedness of entrepreneurial process and challenges notions of atomised entrepreneurial agency. On the basis of this case study we are able to draw out conclusions and implications for entrepreneurship research, pedagogy and also enterprise policy: a focus on the historical and material specificity of the entrepreneurial process augments the work of process theorising in entrepreneurship over the last decade.

## The Austrian entrepreneur: economic formalism at work

The formalist paradigm of entrepreneurship research is predicated on the idea that opportunities exist independently of entrepreneurs, a view favoured by leading business school academics, as well as the strategic entrepreneurship community.[[17]](#endnote-17) Theories of entrepreneurial discovery and exploitation have an intellectual underpinning in the economics of the Austrian school, particularly Kirzner’s writing on entrepreneurial discovery; opportunities are an epiphenomenon of disequilibrium in the economy and entrepreneurs are the mechanisms through which the economy is rebalanced, albeit temporarily.[[18]](#endnote-18) Kirzner's concern with the macro economy used the entrepreneur as a metaphorical device, yet the concept slipped readily into microeconomic analysis.[[19]](#endnote-19) In applying such a theoretical construct to empirical work, discovery focused entrepreneurship research needed to provide an account of the subjective and varied perception of opportunity. Companys and McMullen, writing from the perspective of ‘strategic entrepreneurship’, identify three approaches to the investigation of opportunities: an economic school, where opportunities must be discovered by a costly process of experimentation; a cultural cognitive school, where opportunities depend on changes in actors’ valuation of objects; and a socio-political school, where opportunities are bound up in and transmitted by social networks.[[20]](#endnote-20) For the economic school, opportunity is provided by an uneven distribution of information in the economy, and must be discovered by a costly process of experimentation. The cognitive school emphasises information processing in the mind of the entrepreneur[[21]](#endnote-21). Opportunities may be identified by entrepreneurs who are able to learn, reflect and apply meaningful knowledge from existing business activities.[[22]](#endnote-22) The socio-political school emphasises the role of networks: ‘interpersonal and inter-organizational relationships...as the media through which actors gain access to a variety of resources held by other actors. A key benefit of networks for the entrepreneurial process is the access they provide to information and advice’.[[23]](#endnote-23) The identification and pursuit of opportunities is therefore influenced by the level and quality of the information, support and perceived access to resources provided by relationships that entrepreneurs nurture or can have access to throughout their life.[[24]](#endnote-24) Opportunity becomes an explanatory device, abstracted to an analytic variable and serving to account for the diversity of entrepreneurial action within a generic model of entrepreneurship.[[25]](#endnote-25)

## Entrepreneurship as a specific and particular process

In view of the formalist research agenda, it is hardly surprising that the opportunity construct is recognised as inadequately theorised, ‘a central concept but one which often is ill-conceptualised or applied in an inconsistent manner’.[[26]](#endnote-26) Here the opportunity maintains a careful balancing act: both metaphorical devices in formalist models and realist explanations of variations in individual level behaviour. As such, they are deemed to have an actual existence, at a certain time, independent of and prior to the interventions of the entrepreneur. The ontological convictions of discovery research are reflected in its vocabulary; prepositions such as ‘towards’ locate opportunities as entities independent of the searcher; entrepreneurs have mental schema of what an opportunity ‘looks like’; entrepreneurs are alert ‘to’ opportunities or use techniques such as pattern recognition to ‘see’ them.[[27]](#endnote-27) The conception of opportunities as having a real and independent existence raises a simple question that has been most unproductive for researchers: why is it that opportunities are not visible to everyone? Perhaps entrepreneurs simply have better ‘eyes’ than the rest of us – indeed, the ‘essence of entrepreneurship is to identify and exploit entrepreneurial opportunities – that is, opportunities others do not see’.[[28]](#endnote-28) Discovery research is inconvenienced still further by the fact that – if the spotting of opportunities is the special preserve of entrepreneurs – the rest of us, researchers included, can only see an opportunity once it has been identified and operationalized by an entrepreneur. Görling and Rehn highlight the absurdity of this position, asking: ‘What is the ontological status of the opportunity e.g. Kirzner mentions? Is this some metaphysical phenomenon, which cannot be operationalized except after the fact...That is, if no entrepreneur would come along would the opportunity still be there, as the ghostly presence of an idea?’[[29]](#endnote-29) We are left, as Dimov notes with ‘the problem of meritoriously distinguishing the successes from the failures’.[[30]](#endnote-30)

As a means of avoiding the ‘detecting frivolity’[[31]](#endnote-31) associated with formalist arguments over the definition of opportunity, the attention of entrepreneurship research has shifted to the processes and interactions that constitute entrepreneurial behaviour and new venture creation, a move complemented by calls for a revival of historicism in entrepreneurship research.[[32]](#endnote-32) Sarasvathy’s work in this area is particularly important. In a series of articles she has mapped out an approach known as ‘effectuation’.[[33]](#endnote-33) Sarasvathy asks: how is one to plan a business start-up in an industry or using a technology that does not as yet even exist? For Sarasvathy, historical analyses of businesses show not a linear and causal progression, but rather a story of ‘effectuation with contingent twists and unpredictable turns, relatively unplanned plunges into proximate markets, and a relentless endeavour to shape and control the standards in an emerging industry’.[[34]](#endnote-34) Sarasvathy’s entrepreneur is responsive, constantly alert to the opportunities presented by changing resources, seen in terms of human capital and social relationship: who I am (the entrepreneur's traits, tastes and abilities, her physical resources and the shape of the economy around her); what I know (aspirations, firm level human resources, and technology regimes in the economy); and whom I know (social networks, organisational resources, and socio-political institutions).[[35]](#endnote-35) The entrepreneur must be responsive to all of these variables, and new ventures are shaped accordingly.

In one sense, however, Sarasvathy’s work is noticeable for what it does not do: it does not, in any way, concede that the agency of the entrepreneur might be constrained or diluted by the circumstances in which the entrepreneur finds herself. Sarasvathy portrays entrepreneurship as a relentless drive to control the odds in an unknown future: the theory of effectuation is predicated on ‘controlling an unpredictable future, rather than predicting an uncertain one’.[[36]](#endnote-36) Moreover, effectuation sees entrepreneurship as a political project, asking the entrepreneur what kind of world she would like to live in and presenting entrepreneurial action as a means of access. A similar position on entrepreneurial agency is taken by Baker and Nelson, and Dimov, who arrive at the problem from very different perspectives. Baker and Nelson, concerned like Sarasvathy with resources, developed the concept of entrepreneurial bricolage[[37]](#endnote-37). Entrepreneurs build new ventures from the resources (often seen in the most rudimentary and material sense: engine parts, and electrical spares, for example) available to them. In doing so, entrepreneurs are presented with some possibilities and excluded from others, to the extent where bricolage becomes a robust organisational structure. This is not an entirely positive outcome: Baker and Nelson see entrepreneurs as hemmed in by scarce resources, caught in a savage cycle of ‘making do’. Dimov, on the other hand, is concerned with the social and institutional embeddedness of opportunity.[[38]](#endnote-38) Through this lens, opportunity can be seen as ‘happening’, as expressed in actions, and as instituted in market structures. [[39]](#endnote-39) Resources act as a material cause invoked in the action of entrepreneurship. The conception of opportunity as instituted in market structures is based on a sociological understanding of entrepreneurship as carving out new economic exchange relationships in the market place: ‘this market position is neither real nor guaranteed to be available to the entrepreneur. Rather it is to be constructed through the actions of entrepreneurs as they ‘elbow’ themselves in the market space and seek to forge exchange relationships’.[[40]](#endnote-40)

Other studies have begun to question the extent to which entrepreneurial agency can run untrammelled. Wadwhani and Jones elaborate the historical conditions that are likely to constrain entrepreneurial agency, particularly historical path dependency and institutional development.[[41]](#endnote-41) From the framework of social construction, Fletcher examines, *inter alia*, a relational constructionist perspective, where the accounts that individuals ‘construct about opportunity emergence are expressions of relationship to the culture, society and institutions... in which they had been reproduced’.[[42]](#endnote-42) Entrepreneurial ideas are explored through a dialogue and interaction with others (family friends, potential customers, trading counterparties and financiers) in a process of ‘articulation’[[43]](#endnote-43), of slowly exploring how things might be.

In summary, the creative process perspective on entrepreneurship, combined with an attentive critique of objectivist notions of opportunity, has made much progress in transforming entrepreneurship research. We develop this account of entrepreneurship further by problematizing one element that remains, more or less, intact: the notion of entrepreneurial agency. In doing so we hope to contribute to and strengthen a growing body of theoretical work.

## Opportunity, agency and materiality

We have identified two contrasting positions in the literature: a naive, objectivist perception of opportunity as ‘out there’, a slippage from the metaphorical usage of Austrian economics, and an anti-entitative, anti-objectivist understanding of opportunity as happening or process. In the second conception, opportunity has *become* a metaphor, the guiding principle for the intentional action of the entrepreneur. While opportunity of this kind is a useful explanatory device for empirical work, where ontology matters little[[44]](#endnote-44), it is unsatisfactory in as much as it can no longer support a theoretical framework that requires the opportunity to do: to challenge and shape the agency of the entrepreneur .[[45]](#endnote-45) In this paper we negotiate a middle path: we posit a dialectic relationship between the social networks, material resources and knowledge structures in which the entrepreneur is embedded, and the entrepreneur herself.[[46]](#endnote-46) Through this dialectic the opportunity and the entrepreneur mutually constitute each other in a process of becoming.

Our theoretical framework is one of actor-networks. While identified as offering great promise for process based theorising of entrepreneurship, relatively few studies have, as yet, applied the actor-network framework.[[47]](#endnote-47) Actor-network approaches have resisted codification and resemble instead a loosely connected group of literature linked by certain core assumptions: an insistence on the importance and agency of the material, a rejection of the Modernist separation of objects and knowledge, and an understanding of a ‘relational materiality’ through which objects and individuals derive meaning from their relationships with each other. [[48]](#endnote-48) For actor-network theory, the ‘social’ is not a thing-in-itself, but the product of an organizing and stabilizing of ‘heterogeneous’, material agents. Our framework relies in particular on the formulation offered by Bruno Latour in his books *The Pasteurisation of France* and *Pandora's Hope.*[[49]](#endnote-49) Latour, *qua* philosopher, pushes further: actants derive not only their meaning, but also their existence, from relationships with other actants: being is utterly bound up with relationship. [[50]](#endnote-50)

Latour’s two books are most germane to the problem of entrepreneurial opportunity. *The Pasteurisation of France* asks a simple question: how can one man have done so much? For Latour, Pasteur the man differs from Pasteur the historical figure, the latter being a hybrid of the interests and aims of many groups and individuals, of technological advances, political changes and scientific discoveries. In each relationship Pasteur’s agency is contested and his intention is negotiated until, when eventually discovered, Pasteur’s microbe is not just a biological entity; it derives reality and its power from a network of relationships with human observers, laboratory instruments, scientific practice and knowledge.[[51]](#endnote-51) Paraphrasing Latour, we argue that the exploited opportunity is a network of relationships comprising observers, instruments and practice, material and economic resources, and the entrepreneur. Repeated layers of economic experimentation and interaction serve to discover forms that ‘until now [have] been hidden but that we retrospectively feel [were] already there’.[[52]](#endnote-52) The opportunity, like the microbe, is written back into history. There is, however, a subtlety to the anti-entitative position held by Latour. There is no doubt in his mind as to the reality of the microbe; he is interested in what that reality comprises – an actor-network with agency and political power –and the processes through which it comes into being.[[53]](#endnote-53) *Pandora’s Hope* develops this theme as it sets out to answer an equally simple question: does Latour believe in reality? He answers with a resounding affirmative, but is preoccupied with the mundane practices through which reality becomes observable and understandable: the maps, classificatory grids, and colour charts that aid the geologist, for example.

In this article, we apply Latour’s arguments to the problem of entrepreneurial opportunity. In outline, we argue that:

1) Opportunities come into being as a result of changing network configurations that involve a heterogeneous array of agents and conditions, including the entrepreneur. We argue that opportunity has a relational materiality; opportunities are *ontologically* contingent on individuals, existing in specific temporal and geographical instances in relation to specific agents and actants.[[54]](#endnote-54)

2) Entrepreneurs and opportunities co-constitute each other. A dialectic approach develops the semantic relationship between entrepreneur and opportunity into a relationship of mutual creation and definition.[[55]](#endnote-55) Similarly, opportunities – as materially situated relational networks – and entrepreneurs work on each other. The more the individual works on making the opportunity, the more the opportunity works back in constituting the individual as an entrepreneur.[[56]](#endnote-56)

3) Agency is shared and purpose negotiated. The entrepreneur acts within a specific network, and at a particular time. Through this action, other actants (material as well as human) are enrolled and their goals assimilated.[[57]](#endnote-57)

While it is quite possible to conduct empirical work into entrepreneurial process without a formal specification of the ontological nature of the opportunity, it is not a trivial matter to wrestle with our philosophical understandings of entrepreneurship research.[[58]](#endnote-58) Indeed, Fletcher argues for a closer consideration of the ontological and epistemological aspects of entrepreneurship research, including ‘careful examination of the meta-theoretical foundations of our research... [and] more extensive excursions into the philosophical issues that aid scholarly work and theoretical development’.[[59]](#endnote-59) We suggest that entrepreneurship research will be strengthened by specifying the nature of the entrepreneurial opportunity and its relationship to entrepreneurial process. On this basis we now examine the entrepreneurial history of La Empalizada.

## Data collection and analysis: oral histories

La Empalizada is one of the leading agricultural business groups in Honduras, a Latin American country, located in the Central American isthmus. La Empalizada has been owned and managed by the Lobo family for three generations.

This article draws on oral histories alongside public records to explore the development of business opportunities by the Lobo family and in detail over the period 1990 to 2006. Family and non-family members provided individual oral accounts of the family’s venturing history. In methodological terms this study demonstrates the value of an actor-network-based approach to entrepreneurial process. Actor-network approaches may be seen as a ‘narrative trajectory in which the plot is organised around the main characters’ and as such provide appropriate methodological devices for the analysis of oral histories.[[60]](#endnote-60)

Oral histories were gathered during a three-month period in 2007. All the interviews were conducted by the second author, a Honduran known to the family and with a similar business background and therefore we were more able to access private information, and establish trust and openness in interviews. Interviews lasted between 1 and 2.5 hours and were recorded verbatim in Spanish (the first language of the interviewees and the second author). The collection of oral histories demands a flexible interviewing technique therefore questions were informal and conversational using an unstructured interview schedule. The high profile of the Lobo family in Honduras provides a rich source of public information on their business activities. Oral histories were augmented with information from public records, which also provided political, economic and social context.

This study relied on retrospective accounts and privileged access. The potential pitfalls of oral histories are well known: idiosyncratic viewpoints and retrospective accounts. [[61]](#endnote-61) Families tend to retell and rehearse their shared histories and our analysis showed a great deal of consistency between independent accounts of the same events, suggesting that the Lobo family narrative had been rehearsed over many years. The interviewees were all involved in the process of new venture inception and provided first-hand accounts of events in their recent history. The historical accounts of the Lobo family provided a rich source from which to develop our theoretical account of opportunity. To start, we will present a brief history of ‘*La Empalizada,*’ accounting for the development of the business in a mainstream, objectivist manner.

## An ‘entrepreneurial history’

La Empalizada has developed over the course of three generations from a family farm serving local markets with traditional agricultural products (e.g. mixed grains, dairy and livestock) to a large-scale agricultural enterprise providing specialised products (e.g. soy flour) to multinational buyers. The business is owned and managed by the Lobo family, and is based in Juticalpa, the capital city of Olancho province, Honduras.

### The 1900s: The first generation and the core business opportunities

Oral accounts place the foundation of La Empalizada in the late 1800s.[[62]](#endnote-62) At this time Honduras lacked the infrastructure necessary for farms to diversify production, or to access mountainous areas, although it benefitted from progressive land laws. [[63]](#endnote-63) The farm was first under the control of Rosendo Lopez, who gradually accumulated vast amounts of land in Olancho province. Rosendo Lopez, like the majority of land owners in that time, used the lands for traditional agricultural purposes with the produce sold in local markets. Profits from the exploitation of these local opportunities are believed to have been reinvested in the accumulation of land. This period of accumulation of vast tracts of land by a few families is typical of agriculture in the Honduran post-colonialist era, built on the initial development of dairy farms and agricultural production; La Empalizada is believed to have been just one of many farms owned by Rosendo. [[64]](#endnote-64)

To manage the farms, Rosendo employed family members, among whom were members of the Lobo family. Of these, the most prominent was Porfirio Lobo Lopez, who had developed great expertise in the management of the estates. As Rosendo did not have any children of his own, he chose successors from his extended family, favouring those who had worked the hardest and were the most committed to existing businesses. Porfirio Lobo Lopez was chosen to take over the farm, but he did not work on the farms owned by Rosendo all of his life. Porfirio worked with Rosendo managing La Empalizada, but it was not economically justifiable for Porfirio to remain in Olancho at the existing levels of production. Given the opportunity to do business elsewhere, he left Olancho to seek his fortune. He began developing his own businesses, related to agriculture and commerce, in Colon, another state within Honduras, where he met and married Rosa Sosa. Four children, Ramon, Elsa, Sita and Porfirio Jr. were born and raised during this period. As better opportunities in farming arose in Olancho, they moved back, to work the family land once more. Towards his death, Rosendo granted ownership of La Empalizada and other farms to the family of Porfirio Lobo Lopez. Under the control of Porfirio Lobo Lopez, or ‘Don Pepe’ as most of the people in the region knew him, La Empalizada became an important centre for livestock and agriculture related opportunities. Alongside his farming interests, Don Pepe was an active congressman and was involved in drafting a Honduran constitution in 1957.

### 1950s to 1980s: Training and professionalizing the second generation

While all four children of the Lobo Sosa family were brought up in the agricultural and livestock businesses, it was the male offspring who were inclined (and expected) to continue the agricultural legacy. Porfirio Lobo Sosa (born in 1947), was the youngest of Don Pepe’s offspring. He recalled: ‘*from childhood it was common to be sent to work in the fields, work alongside the farm workers, manage livestock, and prepare all the things that happen around the farm’.* All the offspring were provided with university education. Porfirio Jnr. was mentored by his father in business management and sent by Don Pepe to the United States to study business administration. During this period international demand and the availability of foreign commercial lending led to diversification of exports. Honduras benefited from the Alliance for Progress during the Kennedy administration, which stimulated trade and modernized production, with credit programmes that helped to expand the production of ‘non-traditional’ commodities from countries such as Honduras.[[65]](#endnote-65) Advances in infrastructure made it possible for rural farms to access larger markets.[[66]](#endnote-66)

### 1970- 1990s: The second generation and initial diversification

In 1970 Porfirio Lobo Sosa returned to Honduras with a bachelor degree in business administration and soon afterwards married Amalia Alonzo and started his first family.[[67]](#endnote-67) He combined existing knowledge of agriculture with the management techniques he had learnt at university, in the rapid development of new business lines within the farm. Over the coming decades the agricultural side of La Empalizada was moved from traditional crop cultivation to mass production of maize and sorghum, to specialized products which take advantage of being native to tropical regions and are used for grain or animal feed. In 1984, the Caribbean Basin Initiative was established by US policy-makers to establish regional stability through economic growth stimulated by domestic and foreign investment; agricultural diversification for export was the means by which land owners could benefit from this policy initiative. Under Porfirio Lobo’s management specialized machinery was purchased and imported from the US to help the growth of the farm. With specialized machinery, able to cultivate and harvest large amounts of land, and the introduction of modern agricultural tools (e.g. computerized irrigation systems, and large crop storage systems) Porfirio Lobo began to exploit agricultural opportunities on a national and then international scale. During the 1980s and 1990s Porfirio continued to professionalize and engaged in further economic and political activities. New knowledge generated by these was soon incorporated into managing these existing businesses. Unrelated businesses were also identified and pursued during these decades, but were closed soon after. For example, a commercial automotive distribution firm, founded in the neighbouring town of Juticalpa soon after Porfirio Lobo Sosa returned from the US, had to close due to the demands of the core businesses.

### 1990s –2000s: The third generation and non-traditional agricultural products

All of Porfirio Lobo’s children were introduced to La Empalizada, but it is his oldest sons, Porfirio Lobo Alonzo and Jorge Lobo Alonzo, who are currently involved in its management. Both Porfirio Jr. and Jorge were introduced early into the management of La Empalizada, following the same path their father had with Don Pepe. Porfirio Jr. and Jorge were born in the 1970s and from childhood were gradually given more and more responsibilities within the existing businesses around livestock and agriculture. Over time, their preferences were evident: Porfirio Jr. followed an agricultural engineering path while Jorge pursued a business education. On returning, the brothers worked under the close supervision of the father; as they proved their competence, their father relinquished control. As the brothers gradually developed their managerial and technical competence in the farm, they began experimenting with new business ideas.

During the 1990s Honduran agriculture had progressed from traditional, extensive (slash and burn) agricultural systems to intensive systems, and large producers began to sell their products abroad to take advantage of free trade agreements. [[68]](#endnote-68) The brothers now focused their efforts on developing higher yield crops and expanding the international reach of their businesses. Multinational firms were very active in the rapidly growing economy of Honduras. By 2000, the brothers were engaged in discussions with experienced members of the agricultural research community and representatives of international companies. The brothers also begin tackling agricultural problems, including pests. Some experimental businesses were started in the production of non-traditional agricultural products such as cantaloupes and watermelons. Crop trials identified soy as the next mass production product of choice because it was a high yield product that could be adapted to the vast amount of land. The new business produced over 500 metric tons per year of soybean in rotation with corn and sorghum. The soy business was further developed to include mills producing soy flour, which was in high demand in international markets. Other crops may, in due course, be milled to produce oil. This business has been very successful and sells to multinational companies.

### A discovery-focused account

The growth and development of the farm is very easily portrayed as the discovery and exploitation of successive opportunities. Like many growing firms, the farm initially served local markets and then developed into national and international markets; opening up new markets as political changes provided new opportunities. To serve these markets the range of products increased and diversification provided stability and revenue protection. The farm's growth can equally be seen in terms of the resources available to managers, in terms of knowledge and expertise, production resources, and capital. As managers became more sophisticated and knowledgeable, the farm diversified and specialised, using increasingly efficient and specialist machinery. Profits were reinvested, and the increased capital resources supported investment into new crops and production machinery. New crops and new businesses can be seen as experimentation in the economy, successful or otherwise; the farm's managers were developing their cognitive skills in recognising opportunities, learning to visualise and prototype new products. As the farm grew, and the management become established in broader social networks, they received better information and had access to greater resources in terms of e.g. production machinery and capital. Due to Porfirio Sr.'s ventures into politics, as well as the prolonged economic and agricultural success of the farm, the family by this time commanded enormous social capital which it could leverage in pursuit of new business ventures.

One is left, however, with a gnawing feeling that this story is only a *partial* story; presenting as it does the progress of the farm as a continual and linear narrative of economic progress, eventually and inevitably delivering the farm to its destination as supplier of soy flour to a multinational market. A closer examination of the data and a more developed theoretical perspective is therefore necessary.

## Materially embedded opportunity

To the ‘mainstream’ understanding of entrepreneurial activity as taking place in networks of social and economic relations we add a third category of relationship, with material actants. The Lobo family understands this well enough, recognising that ideas and contacts alone do not constitute an opportunity; the opportunity must be worked up in partnership with the land, the sun and the weather. As Porfirio Sr. said: ‘*We had to realize that what we sell is sun, and the more area that the sun hits the better*’. The ground and sun are part of the actor-network of opportunity; they determine what will grow and what will not, where certain machinery may be used and where not. Moreover, Porfirio Lobo Sosa recognised that this process of mutual constitution of an opportunity soon stretches across a much wider network, through import and export regulations and into a broader market: ‘*...you can only know whether the market is there if you produce a small quantity, if for instance my contacts tell me that after they tried the product they want more, then I invest more. Otherwise I will lose time and resources...’* A material perspective directs attention to actants such as the plants themselves; the farmer-entrepreneur must move slowly to co-opt the plants into a viable business, where the plants’ willingness to grow becomes a vital part of any opportunity. Again, Porfirio Sr.’s descriptions recognise this labour: ‘*It is normal that if you never cultivated a product before, you need first to see the initial yields that it produces...this may take several harvests. You need to know the ratio of land to product, the water needed, fertilising...’* He describes, not a smooth development of farming activities, but a slow process of ‘enrolment’[[69]](#endnote-69), a process that served to discover which combinations of plant and animal were viable.

The mainstream account presented above concludes with the firm's entry into the soy flour market, seen as the natural consequence of prolonged innovation and expansion. Yet a close reading of the oral histories shows that the soy opportunity began, not with the identification of willing buyers for an end product, but with a problem.[[70]](#endnote-70) Changing weather led to plant disease, which significantly changed the patterns of agriculture in the area. Soy was introduced first of all as a plant that was able to withstand the ravages of insects and disease. Jorge explained: *‘…due to climate change several plagues started to attack traditional crops. Furthermore soil chemistry was affected and new crops had to be considered. After making an analysis and a test in a small piece of land in the farm and after talking to several people in the industry, we found that soy was both a solution to the problem and could be more profitable as well*’. Profitability, it seems, came as an afterthought; the basic raw material for the family’s latest venture came to be on the farm largely *by accident*.

A process of negotiation and re-formation followed, and here economic and management theory contributes much to the construction of an opportunity. The business administration classes attended by Porfirio Lobo Sosa and Jorge prescribed sophisticated calculations of breakeven and return, and these were employed to assess the possible implications of adverse weather, or the effect of swings in pricing: ‘…*let’s say we know the cycles on weather until we got severe droughts or rain delayed for a couple of days or weeks, that affected us, then we innovated with artificial irrigation by computers...once all the costs of production are assessed then we can see what it will take to at least break even... in this business you need to understand that to make a business stable it takes years not months... Then you get news months in advance about a demand let’s say of papaya, then you have to check your experience and the availability of resources and most importantly realize that with nature you might be fooled at times….we make our estimates of the production per acre and check with our contacts whether such estimates are high or low and then when we check international prices then we propose it to buyers…*’. Theoretical and calculative apparatus provides a means of ‘framing and disentangling’ information so that effective decisions may be taken[[71]](#endnote-71); the formal economic structures of business administration thus combined with expert opinions of farmers, of bankers, alongside the affinities of ground and weather, and the capabilities of existing machinery in the constitution of an opportunity.

Again, Porfirio Sr. recognised that new business development is highly contingent, and suggested that opportunities came out of problems encountered in the business: ‘*...if a certain production technique did not work, then you have to figure out new ways or even new products, that is how we realise that we can get involved with new businesses...when solving such problems we have created or spotted new opportunities* ***without really realizing it****’* In the case of the move to sell soy beans, it appears that the opportunity had neither been recognised up front by the family, nor effectuated out of the available resources by an entrepreneur reacting to external stimuli. Instead it appears to have been presented to the entrepreneurial family by accident, without them ‘really realising it’, by particular combinations of material – in the broadest sense –actants. In an actor network account, the problem of plant disease leads to the enrolment of new actants (the soy plant, the financial forecast, irrigation and new production techniques, and capital) and the mobilisation of the new network to a certain end: the large-scale production of soy. Yet, the story does not end here. Despite the substantial network standing behind it, the first crop of soy failed to find a ready market, and Porfirio had to request his business contacts to take it up (another example of problem, negotiation, and enrolment!).

Soy entered the entrepreneurial network in an alliance against unforeseen events. It grew well but sold badly: the network encounters another problem. Material factors prevented the adoption of another crop, and therefore the family searched for buyers, with little success, until another detour presented itself. Porfirio Jr. learned from a former university tutor that a traditional mill could easily be retooled to produce soy flour, a more sought-after product, while standard silos could be converted to store the flour. Surplus mill capacity could then be rented to other farms in the area. The family owned a mill and silos that could be converted into the necessary equipment. Therefore another line of action opened up to the family, and with it another set of obstacles. The conversion depended upon the suitability of the existing plant for conversions, and underlying the strategy was the assumption that Porfirio Jr.’s engineering skills could cope with the difficulties of conversion. Once again, further actors are enrolled in the construction of an opportunity: the mill, silos and associated plant, already standing, that could be retooled (enrolled) at limited cost.[[72]](#endnote-72) Once the conversion was made, the plant’s spare capacity could be leased out to neighbouring farmers, and further revenues generated. In the face of obstacles, new material actants are enrolled. The system is ‘redesigned and modified in order to render the socio-technical system sufficiently docile and predictable, ready to be aligned with the other elements of the actor network’[[73]](#endnote-73); in this case, it is the mill that is tamed, that ‘allows itself’ to be converted. In doing so, it takes part in the constitution of an opportunity that is predicated on a successful conversion; without it, there is no opportunity. Eventually, a new network is built that includes the buyers of multinational corporations, substantial capital, and export regulations, alongside the soy bean and the refitted mill. Thus equipped, the network moves forward as a commercial entity – an economic actor – in its entirety: a large-scale agribusiness producing soy flour for multinational corporations.

## Conclusion

The literature of entrepreneurial opportunity has undergone a significant transformation in recent years as its focus has moved from discovery based approaches to entrepreneurial process: opportunity as effectuation, happening, or as embedded in phenomenological and narrative accounts. In this paper, we contribute to the growing literature of entrepreneurial process by developing an actor network-inspired account of entrepreneurial opportunity. We argued that opportunities are constituted by dense and changing material networks of which the entrepreneur is (only) a part. In recognising the situated nature of entrepreneurial opportunity and the dispersion of entrepreneurial agency, we offer a balanced historical method that incorporates the accidental and the contingent. In doing so, we have emphasised the materially embedded nature of opportunity exploitation, and we have suggested one way of tackling the persistent problem of the ontological status of the opportunity.

First of all, we have argued that opportunities ‘come to be’ rather than ‘exist’. This process of becoming is contingent upon a rich materially and temporally specific network, including the entrepreneur. Entrepreneurs, as the Lobo family demonstrate, work on their opportunities, their firms, and their networks. In doing so, they constitute their opportunities as opportunities, and are themselves constituted as entrepreneurs. Our notion of opportunity is underpinned by the ‘ontological performativity’ of actor network theory; the social is seen as inherently fluid categories and descriptions, temporarily stabilised in relations. We suggest that this process of entrepreneurial becoming fits within the broad concept of ‘entrepreneuring’ proposed by Steyaert.[[74]](#endnote-74)

An actor-network account of entrepreneurial process can negotiate its way between the discovery perspective, where the opportunity is pre-existent and stable, and process perspectives, that regard the entrepreneur as pre-existent and stable, but the opportunity as uncertain and variable. It offers a version of ‘entrepreneuring’ that can take seriously the uncertainty and resource dependency of entrepreneurial activity, yet recognise that the actor-networks surrounding of an entrepreneur may have an effect on the entrepreneur, even to the extent of permitting or denying entrepreneurial action – the very possibility of becoming an entrepreneur. Such a conclusion will have implications for entrepreneurship research and pedagogy, and also enterprise policy, particularly in the face of the agent-centred optimism of the contemporary popular discourse of entrepreneurship. For example, it provides a theoretical complementarity to recent studies of the (in)effectiveness of enterprise policy in deprived areas, highlighting the importance of the situated nature of entrepreneurship and showing that too little emphasis is given to geographical, social and temporal context.[[75]](#endnote-75) On the same grounds, entrepreneurship teaching that emphasises business planning skills, the seeking out of opportunities that others cannot find, and even encourages excessive confidence and risk-taking, may be doing students and the broader community a disservice.

The nature of entrepreneurial agency is of particular importance in our account. Entrepreneurship research, whether discovery or process focused, tends to place all agency in the hands of the entrepreneur. We have argued that entrepreneurs share agency with the other actants in the networks of discovery and exploitation: agency, both in the sense of bringing into being through relations, and in a practical sense of negotiating the future direction for the entrepreneurial actor-network. We have shown how the Lobo family’s dominant position in the (previously non-existent) soy flour market came about as a combination of consequences and reactions, rather than as a planned strategy of exploitation of resources and opportunities. Opportunities were embedded in a variety of material actants, from the climate and geology of Honduran farmland to the knowledge and expertise offered by associates of the family. We have thus developed existing process accounts through an emphasis on the dependency of the eventual outcome on the actor network as a whole. Again, this has important implications for research into entrepreneurial process. We would suggest that research which treats the quality of entrepreneurship as atomised – however socially and materially embedded the entrepreneur may be – and relies on an individualised concept of rational – however boundedly – agency, runs the risk of over-attributing the outcomes of entrepreneurial process to the entrepreneur, and in doing so mis-specifying causality. We repeat Sarasvathy’s caution about classroom planning techniques, and suggest instead that entrepreneurship pedagogy emphasises awareness of history and tradition, and incorporates the skill set that can support entrepreneurial progress: negotiation, social interaction, political, historical and cultural awareness.

Finally, in keeping with the aims of this special issue, an actor-network account, as a methodological framework and explanatory device, greatly emphasises the historically dependent nature of entrepreneurial process, forcing close analysis of the material, temporal and geographic embeddedness of entrepreneurial activity. We caution against hindsight-laden, idealist accounts of opportunity recognition and business creation. We argue that analysis of opportunity should be taken beyond the cognitive abilities of the entrepreneur, and beyond the social networks that surround her, until it encompasses the material factors in which the opportunity is embedded. The recognition that opportunity is constituted by a network of varied actors encourages researchers to take a time and context specific approach to individual attempts at exploitation, and to recognise the complex, contingent nature of entrepreneurial process. For an actor-network account of opportunity, history really matters.

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1. Wadwhani, *Historical Reasoning and the Development of Entrepreneurship Theory*, 343 [↑](#endnote-ref-1)
2. Ibid., 343 [↑](#endnote-ref-2)
3. The economic approach is exemplified by Shane and Venkataraman, ‘The Promise of Entrepreneurship as a Field of Research’. [↑](#endnote-ref-3)
4. Shane, *A General Theory of Entrepreneurship*, 10. [↑](#endnote-ref-4)
5. Steyaert, ‘Entrepreneuring’ as a Conceptual Attractor? A Review of Process Theories in 20 Years of Entrepreneurship Studies’ summarises the literature on entrepreneurship as process. [↑](#endnote-ref-5)
6. Polanyi’s distinction between formal and substantive is employed in this context by Dimov, ‘Grappling with the Unbearable Elusiveness of Entrepreneurial Opportunities’. [↑](#endnote-ref-6)
7. Ibid., 61 [↑](#endnote-ref-7)
8. Baron, *Opportunity Recognition: Evolving Theoretical Perspectives,* Cassis and Mingolou, *Entrepreneurship in Theory and History: State of the Art and New Perspectives*. The discovery approach has its intellectual roots in Kirzner’s conception of ‘low-level entrepreneurship’. As Dimov notes, the macroeconomic analysis of the Austrian School did indeed see opportunity alertness as a metaphor for the actions of entrepreneurs in moving the economy towards equilibrium (Dimov, ‘Grappling’, 60). [↑](#endnote-ref-8)
9. Ibid., 62 [↑](#endnote-ref-9)
10. Parsons and Rose, ‘Communities of Knowledge: Entrepreneurship, Innovation and Networks in the British Outdoor Trade, 1960–90’, Jack and Rose, *The Historical Roots of Socio-Network Theory in Entrepreneurship Research*. [↑](#endnote-ref-10)
11. Sarasvathy, ‘Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency’. [↑](#endnote-ref-11)
12. Wadhwani and Jones, ‘Schumpeter’s Plea: Historical Approaches to the Study of Entrepreneurship’. [↑](#endnote-ref-12)
13. Law, *Ant: Complexity, Naming and Topology,* Harman, *Latour: Prince of Networks*. The term ‘actant’ is commonly used in actor-network literature to avoid the sociologically loaded terms actor and agent. Latour’s work, which coined the phrase, often uses ‘actant’ as a synonym for ‘object’. [↑](#endnote-ref-13)
14. Görling and Rehn, ‘Accidental Ventures - a Materialist Reading of Opportunity and Entrepreneurial Potential’. [↑](#endnote-ref-14)
15. Ibid., 20 [↑](#endnote-ref-15)
16. Latour, *Pandora’s Hope*, Latour, *The Pasteurization of France*. [↑](#endnote-ref-16)
17. Shane, *A General Theory of Entrepreneurship*, Shane and Venkataraman, ‘The Promise of Entrepreneurship as a Field of Research’., Hitt et al., ‘Guest Editors’ Introduction to the Special Issue. Strategic Entrepreneurship: Entrepreneurial Strategies for Wealth Creation’, Ireland et al., *The Management of Strategy*. [↑](#endnote-ref-17)
18. Kirzner, ‘Entrepreneurial Discovery and the Competitive Market Process; an Austrian Approach ‘. On the other hand, Schumpeter argued that that entrepreneurs create disequilibrium by developing ‘new combinations’ (Schumpeter, *The Theory of Economic Development*.) [↑](#endnote-ref-18)
19. Shane, *A General Theory of Entrepreneurship,* Kirzner*,* ‘Entrepreneurial discovery and the competitive market process’. Shane exemplifies the view of the entrepreneur as benefiting from economic inefficiencies. Kirzner’s use of entrepreneur, on the other hand, parallels the arbitrageur of efficient market theory; a theoretical construct rather than a socially embedded and physically embodied human individual. [↑](#endnote-ref-19)
20. Companys and McMullen, ‘Strategic Entrepreneurs at Work: The Nature, Discovery, and Exploitation of Entrepreneurial Opportunities’. [↑](#endnote-ref-20)
21. Baron, ‘The Cognitive Perspective: A Valuable Tool for Answering Entrepreneurship’s Basic ‘Why’ Questions’, Baron, *Opportunity Recognition: Evolving Theoretical Perspectives*. [↑](#endnote-ref-21)
22. Mitchell et al., ‘Toward a Theory of Entrepreneurial Cognition: Rethinking the People Side of Entrepreneurship Research’. [↑](#endnote-ref-22)
23. Hoang and Antoncic, ‘Network-Based Research in Entrepreneurship: A Critical Review’ 166. [↑](#endnote-ref-23)
24. Jack, ‘The Role, Use and Activation of Strong and Weak Network Ties: A Qualitative Analysis’. [↑](#endnote-ref-24)
25. Dimov, ‘Grappling with the Unbearable Elusiveness of Entrepreneurial Opportunities’. [↑](#endnote-ref-25)
26. Davidsson, *Researching Entrepreneurship*, 20. [↑](#endnote-ref-26)
27. Ardichvili et al., ‘A Theory of Entrepreneurial Opportunity Identification and Development’, Kirzner, ‘Entrepreneurial Discovery and the Competitive Market Process; an Austrian Approach ‘, Baron and Ensley, ‘Opportunity Recognition as the Detection of Meaningful Patterns: Evidence from Comparisons of Novice and Experienced Entrepreneurs’. [↑](#endnote-ref-27)
28. Ireland et al., *The Management of Strategy*, 369. [↑](#endnote-ref-28)
29. Görling and Rehn, ‘Accidental Ventures - a Materialist Reading of Opportunity and Entrepreneurial Potential’, 96. [↑](#endnote-ref-29)
30. Dimov, ‘Grappling with the Unbearable Elusiveness of Entrepreneurial Opportunities’, 63 [↑](#endnote-ref-30)
31. Ibid., 61 [↑](#endnote-ref-31)
32. Bhide, ‘How Entrepreneurs Craft’, discussed the responsive ‘craft’ of entrepreneurs nearly two decades ago. Cassis and Mingolou, *Entrepreneurship in Theory and History: State of the Art and New Perpectives*, Wadhwani and Jones, ‘Schumpeter’s Plea’, Wadwhani, *Historical Reasoning and the Development of Entrepreneurship Theory*. [↑](#endnote-ref-32)
33. Sarasvathy, ‘Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency’ [↑](#endnote-ref-33)
34. Sarasvathy, ‘Entrepreneurship as a Science of the Artificial’, 207 [↑](#endnote-ref-34)
35. Sarasvathy, ‘Causation and Effectuation’ [↑](#endnote-ref-35)
36. Ibid., 252 [↑](#endnote-ref-36)
37. Baker and Nelson, ‘Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage’. [↑](#endnote-ref-37)
38. Dimov, ‘Grappling’. [↑](#endnote-ref-38)
39. Ibid., 64: Dimov makes use of a productive biological metaphor: the idea as an embryo and the opportunity a foetus. The progenitors of the venture idea are the aspiring entrepreneur and the surrounding environment, seen in terms of information and stimuli. The metaphor, while firmly locating the genesis of the opportunity as an idea in the imagination of the entrepreneur, does deal with one particularly pressing problem noted above: the ability of some people and not others to discover particular opportunities. In a biological metaphor while ‘some people’ remains important, ‘not others’ is redundant. [↑](#endnote-ref-39)
40. Dimov, ‘Grappling’, 68 [↑](#endnote-ref-40)
41. Wadhwani and Jones, ‘Schumpeter’s Plea’. [↑](#endnote-ref-41)
42. Fletcher, ‘Entrepreneurial Processes and the Social Construction of Opportunity’, 434 [↑](#endnote-ref-42)
43. Ibid., 435 [↑](#endnote-ref-43)
44. Dimov, ‘Grappling’, 63 [↑](#endnote-ref-44)
45. Ibid. Dimov’s conception of the opportunity as lodged in the entrepreneur’s imagination, for example, retains a strong conception of entrepreneurial agency in isolation from its material surrounds [↑](#endnote-ref-45)
46. Fletcher’s socially constructed opportunity is predicated on a sociological concept of ‘structuration’ (Giddens, *The Constitution of Society: Outline of the Theory of Structuration*) The interplay of structure and agency as individuals, embedded in social networks, negotiate shared understandings of valuation and opportunity. Our account differs in its emphasis on material networks and interactions; macro-level (structure) outcomes should be seen as the result of a process of ‘summing up of interactions through various kinds of devices, inscriptions, forms and formulae’ (Latour, *On Recalling Ant*, 17) [↑](#endnote-ref-46)
47. Steyaert, ‘Entrepreneuring’, notes the promise of actor network methodologies and identifies two studies, of which we consider the most interesting to be Gherardi and Nicolini, *Actor Network: Ecology and Entrpreneurs*. [↑](#endnote-ref-47)
48. Ibid., 287. Steyaert summarizes neatly: ‘[ANT’s] fundamental variations from social constructionism appear in its rethinking of the non-human and of the notion of action in general. While its emphasis is also on social process, it does not take the social for granted but rather reconstructs it as a patterned network of heterogeneous materials – not only people but also machines, animals, texts, objects, buildings and so on – which are kept together by active processes of ordering. Process is conceptualized in conjunction with the notion of ‘translation’, which refers to the double geometric and semiotic movement of an entity in time and space and of an entity that changes from one context to another’. Also, Law, *Ant: Complexity, Naming and Topology*. [↑](#endnote-ref-48)
49. Latour, *Pandora’s Hope*, Latour, *The Pasteurization of France*. [↑](#endnote-ref-49)
50. Harman, *Latour: Prince of Networks*. Latour’s philosophical contribution is fully explored here. [↑](#endnote-ref-50)
51. Latour, *Pandora’s Hope*, 169. [↑](#endnote-ref-51)
52. Ibid., 67. [↑](#endnote-ref-52)
53. Steyaert, ‘Entrepreneuring’, 287, comments that ‘this perspective is anti-entitative and should be thought of as a form of ‘actor networking’, since no actor network can exist before it undergoes its own process of translation’. Perhaps it might be more appropriate to think of Latour’s position as anti-pre-entitative! [↑](#endnote-ref-53)
54. Dimov’s biological metaphor may be stretched further to include the role of time and of chance: we would never suppose that an embryo conceived by two parents would be the same as one conceived by the same parents on another occasion, nor even that two embryos conceived by the same parents at the same time should be the identical. [↑](#endnote-ref-54)
55. Latour, *Pandora’s Hope,* argued that the more Pasteur worked on the microbe – not as a microbe but as a network of relationships covering the biological entity, the human observers, instruments and scientific practice, all of which is held together by scientific knowledge – the more the microbe worked back [↑](#endnote-ref-55)
56. A point which is intended to be read as an ontological claim. In the account offered by effectuation the outcome of entrepreneurial action will be shaped by social networks and resources, but the *quiddity* of the entrepreneur remains unchanged. [↑](#endnote-ref-56)
57. The recognition of the agency of material things is a crucial aspect of our contribution and may be usefully illustrated by an example. A hypothetical entrepreneur uses a spread-sheet-based technical calculator to ascertain the viability of a particular investment. In a process account focused around the agency of the entrepreneur, she is presented with a binary choice, and acts accordingly; the opportunity exists and is exploited, or otherwise. The spread-sheet, and the technical calculation buried inside it, is lost to view. In a materialist account, the spread-sheet becomes a focal point of the process; we recognise the calculation and expertise hidden in the calculator, and the power attached to it. The calculator not only sets out the possibility (makes the opportunity ‘real’ in the mind of the entrepreneur) but is also enrolled in a new network; it carries a source of technical authority with which it persuades the entrepreneur to take a course of action; the entrepreneur takes the calculator to the financier, who impressed by its technical accuracy makes capital available; perhaps, in an ironic twist, the calculator is on issue from the finance company, simultaneously enlisting the entrepreneur in the firm’s commercial gender, and communicating directly with its back-office system to make funds available. The calculator does more than offer information onto the entrepreneur: it contests, negotiates and travels, and what emerges is a ‘hybrid’ (Latour, *We Have Never Been Modern*)of social and technical action. [↑](#endnote-ref-57)
58. Dimov, ‘Grappling’, advocates a focus on empirical work rather than a persistent debate over ontology. [↑](#endnote-ref-58)
59. Fletcher, ‘Entrepreneurial Processes and the Social Construction of Opportunity’, 423 [↑](#endnote-ref-59)
60. Gherardi and Nicolini, *Actor Network: Ecology and Entrepreneurs*, 7. We recognise the potential problems in using human accounts to access non-human agency. Future actor-network studies may be better served by observation-based methods, as frequently practised in science studies and related disciplines. We note that Gherardi and Nicolini do not specify their method of data collection. [↑](#endnote-ref-60)
61. Yow, *Recording Oral History: A Guide for the Humanities and Social Sciences*. [↑](#endnote-ref-61)
62. Moncada, *Lobo Al Mando De La Nacion*. [↑](#endnote-ref-62)
63. Stokes, ‘The Land Laws of Honduras’, Ruhl, ‘Agrarian Structure and Political Stability in Honduras’. [↑](#endnote-ref-63)
64. Sarmiento, *Historia De Olancho 1524-1877*. [↑](#endnote-ref-64)
65. Stonich, ‘The Promotion of Non-Traditional Agricultural Exports in Honduras: Issues of Equity, Environment and Natural Resource Management’. [↑](#endnote-ref-65)
66. Morris and Ropp, ‘Corporatism and Dependent Development: A Honduran Case Study’. [↑](#endnote-ref-66)
67. Gallegos, *Los 35 ‘Secretos’ De ‘Pepe’ Lobo,* Moncada, *Lobo Al Mando De La Nacion*. Porfirio Lobo Sosa is the current owner of La Empalizada. He has a wide range of political and economic interests, and became president of Honduras in January 2010. After Don Pepe died, he is believed to have inherited around 3000 hectares of land Porfirio Lobo Sosa has married three times and has fathered 11 children. [↑](#endnote-ref-67)
68. Mausolff and Farber, ‘An Economic Analysis of Ecological Agricultural Technologies among Peasant Farmers in Honduras’. [↑](#endnote-ref-68)
69. Callon, *Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fisherman of St Brieuc Bay*. [↑](#endnote-ref-69)
70. Actor networks may be visualised as developing in the following manner: problem identification and exploration; negotiation and re-formation; and finally, mobilisation of the new network. Callon (ibid.) provides a more specific methodological apparatus of problematization/ interessment/ enrolment/ mobilization, which is used to good effect by Gherardi and Nicolini, *Actor Network: Ecology and Entrpreneurs*. [↑](#endnote-ref-70)
71. Callon, *The Laws of the Markets*, 16. ‘If calculations are to be performed and completed, the agents and goods involved in these calculations must be disentangled and framed. In short, a clear and precise boundary must be drawn between the relations which the agents will take into account and those which will be thrown out of the calculation as such…Economic theory has already expressed this question very specifically through the notion of externality which allows the introduction of the more general question of disentanglement.’ [↑](#endnote-ref-71)
72. Here our narrative closely echoes the discussion of ‘Wasser’s’ power generation plant in Gherardi and Nicolini, *Actor Network,*  where the mobilisation of a network hung for a moment on the pliability of engine shafts. [↑](#endnote-ref-72)
73. Ibid., 12 [↑](#endnote-ref-73)
74. Steyaert, ‘Entrepreneuring’. [↑](#endnote-ref-74)
75. Southern, *Enterprise, Deprivation and Social Exclusion: The Role of Small Business in Addressing Social and Economic Inequalities*  [↑](#endnote-ref-75)