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Digital Start-Ups in the Global South: *Embeddedness, Digitality and Peripherality in Latin America*

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2017

Abstract

There is debate about the extent to which digital activity is embedded or disembedded from various aspects of its context including place, institutions and networks. Yet little research has so far been conducted on this issue in relation to digital enterprises, particularly those in developing countries. Because of the growing importance of the digital economy in developing countries, an interview- and observation-based research study was undertaken of digital start-ups in the four largest Latin American economies, using the Triple Embeddedness Framework as its conceptual foundation.

The paper finds that digital start-ups are multiply embedded: in both product and digital sector regimes, in both local and global industry regimes, and also in their economic and socio-political environment. This hybrid embedding is often a source of strength, particularly when embeddedness is strong enough to provide flows of knowledge and other resources but not so strong as to constrain innovation. The digitality of these start-ups helps achieve this "Goldilocks"/"just right" level of embeddedness in the digital sector, and in local and global contexts. Developing country positioning on the relative periphery of the global economy is also relatively helpful; allowing ideas to flow in but offering some protection from external competition. Some conclusions are drawn for government policy, business strategy and conceptualisation of digital embeddedness.

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A. Introduction

There is a debate on the relationship between digitality and context. Some associate the digital with disembedding and disembeddedness: a releasing or an absence of the physical, institutional and relational ties that bind entities to a particular context (Fisher 2010). Others have challenged this idea, seeing digital activity as having important geographic or other contextual roots (Graham 1998).

This debate has touched all aspects of digital activity – digital politics, digital society – including our particular interest here, which is the digital economy and digital enterprise. At one extreme, these may be seen to operate in some free-floating cyberspace detached from other context; at the other, they are seen to have important connections to local places, institutions and actors (Matuschewski 2006, McQuail 2007). And the debate also applies to a second focus for this paper: developing countries. Some see digital technology levelling the playing field and enabling developing country economic activity to float free of, for example, local institutional and infrastructural constraints; others argue that digital activity in developing countries is largely defined by its social embeddedness in the local context (Avgerou 2010, Murphy & Carmody 2015).

While there has been an emergent vein of work on digital activity and embeddedness overall, there is very little written on this specifically in relation to the digital economy, and next to nothing on the digital economy in developing countries. This, despite the acknowledged and growing importance of the digital sector within economic development (World Bank 2016), and the acknowledged importance of embedding and disembedding to economic development (Barber 1995).

To address this knowledge gap, we undertook a study of digital start-ups in the global South, selecting examples from four Latin American countries. The work reported here concentrates on the issues of embeddedness, seeking to understand whether, how and in what contexts Latin American digital start-ups are embedded; and the implications thereof.

We next briefly review the notion of embeddedness, including a framework that was used to structure our enquiry, and its relation to digital enterprise. Following an explanation of methods, our findings are presented, followed by a discussion and conclusions.

B. Reviewing Digital Embeddedness

The idea of embeddedness is invariably associated with the work of Polanyi (e.g. 1944), despite his relatively limited use of the term (Beckert 2009), and is generally interpreted as the embedding of economic activity within a broader context of societal institutions such as policies and cultural values. Polanyi (e.g. 1957) saw one process of capitalist development to be disembedding: the freeing of resources like labour and money from their socio-cultural ties through their commodification; thus making them more controllable (Wood et al 2016). Others have seen a similar process of disembedding at play as the result of the digitisation of the economy: a commodification and virtualisation that disembeds core

components of economic activity (Kallinikos 2006). Though sometimes understood as a disembedding from institutional ties: de-institutionalisation, this is also often interpreted as a disembedding from locality; a so-called de-territorialisation of economic activity (Toal 1999).

But others have argued that notions of disembedding associated with the growing digital economy can be overblown; especially in broad-sweep discussions using rather excitable "weightless economy" labels (Quah 1999) or "world is flat" slogans (Friedman 2005). The critiques have two main arguments. First, that digital economic activity is not as disembedded as claimed, being still embedded in the two senses identified above: embedded in a local physical space and embedded in a set of local institutions. Hence, for example, findings that digital enterprises tend to cluster together and draw heavily on physical interactions and on local infrastructural and educational institutions (Matuschewski 2006). Second, that a re-embedding has occurred, particularly relating to a third sense of embeddedness: within networks. A main driver of this notion has been Castells' work (e.g. 2010) seeing digital technology driving a shift from physical place to network space, and research thus finding virtual networking to be increasingly important to digital enterprise (Sigfusson & Chetty 2013).

So one dimension of debate about the digital economy relates to the extent of embedding, and also the type: territorial, institutional, network. Another dimension relates to the impact of embeddedness, though here there is less disagreement. Embeddedness is understood to be both a strength but also a constraint (Uzzi 1997, Henderson et al 2002). For example, embeddedness provides economic and cultural resources – access to finance and skills and ideas, knowledge of customers, a sense of purpose and identity, etc. – and the institutional foundations necessary for commercial transactions to take place. On the other hand, embeddedness can constrain economic growth and innovation if it locks firms in to particular processes and markets.

Discussion of embeddedness – extent, type, impact – has been a staple of economic sociology for a number of decades. However, much less has been written about embeddedness of digital enterprises, and relatively little also about embeddedness of economic activity in developing countries. Literature at the intersection of these strands – researching the embeddedness of digital enterprises in developing countries – has been very rare. While many papers discuss the role of social context in shaping use of ICTs in developing countries (Avgerou 2010), very few look explicitly at embeddedness. Two recent papers trace the disembedding associated with commodification of labour – some of which is developing country-based – in global production networks of digital work such as software development or online micro-tasks (Flecker & Schonauer 2016, Wood et al 2016). One paper looks directly at social/network embeddedness of digital entrepreneurs in China, finding that they are embedded in a mix of virtual and traditional social networks which support their economic activity (Avgerou & Li 2013).

Yet developing country digital economies are already relatively sizeable. For example, across Latin America as a whole the digital economy (goods and services that are wholly or principally reliant on digital technologies) contributes at least 2.0% of GDP in each country and 3.2% of GDP in the larger economies that are the focus in this paper (ECLAC 2013).

Digital growth rates are also high with, for example, fixed broadband use in Latin America growing by 16% per year in the 2010s and mobile broadband use growing by 73% per year (Katz 2015) and hence "the digital economy is, by far, the biggest opportunity the region may explore" (Caride 2016). Given the growing importance of the sector and the demonstrated importance of embeddedness, this created a knowledge gap which was worthy of addressing.

In conceptualising the relation between embeddedness and digital enterprise in developing countries, there are various frameworks that might be used. Early frameworks tend to be fairly uni-dimensional: for example Polanyi's original notion of embedding within socio-economic institutions (Polanyi 1944), or Granovetter's (1985) discussion of embedding within social networks. Later models start to combine different senses of embedding: thus Zukin & DiMaggio (1990) incorporate both formal and informal institutions and network relations into their model of embeddedness. But here we use a more recent and comprehensive approach that seeks to build on, and incorporate, all of these earlier ideas: Geels' (2014) Triple Embeddedness Framework (TEF) (see Figure 1).

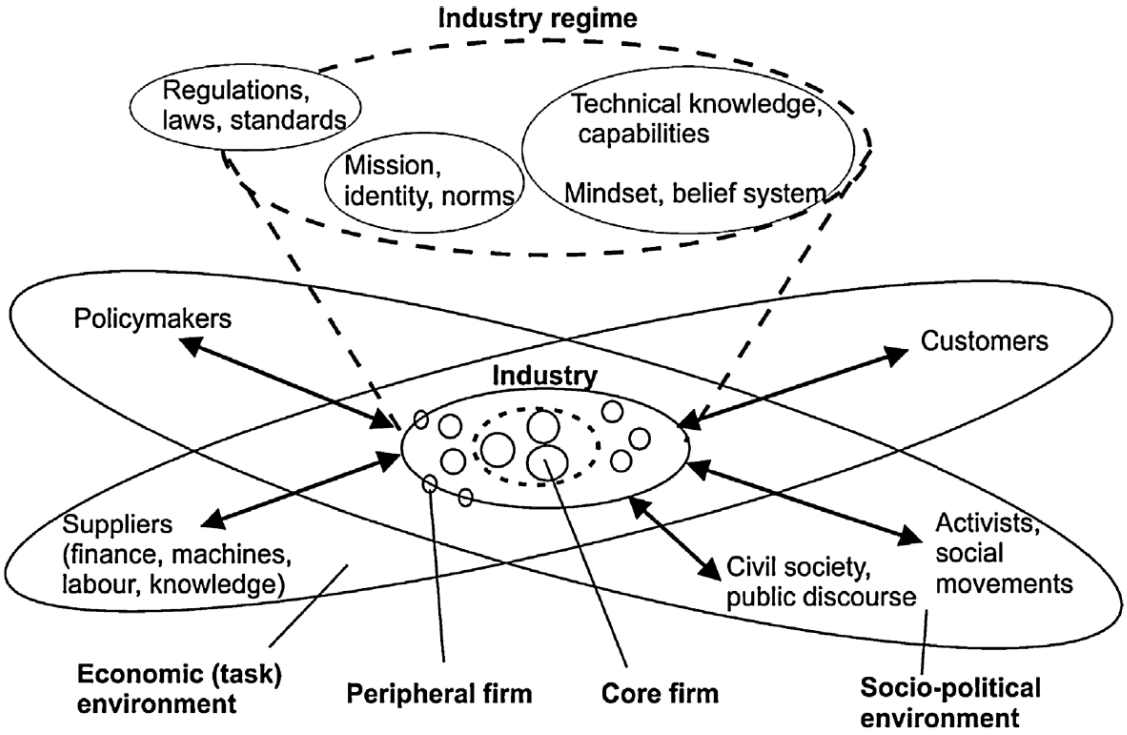

Figure 1. Triple Embeddedness Framework

The three embeddings relate to industry regime, economic environment, and socio-political environment: "Interactions between firms-in-industries and social groups in economic and socio-political environments can be regarded as 'horizontal' embeddedness, while relations between incumbent firms and industry regimes can be seen as 'vertical embeddedness'" (*ibid.*:267). In terms of the three types of embeddedness identified earlier – territorial, institutional, network – the TEF therefore focuses mainly on the latter two much more than the former. This was seen as appropriate for digital enterprises which – due to their

virtualised products and processes – are more limited in their connections to immediate physical place.

Summarising across an array of literature, the TEF identifies four types of institution into which (digital) enterprises might be embedded:

- Functional-cognitive: technical knowledge and routines.
- Cultural-cognitive: mindsets around the nature of reality, and interpretations of the wider environment and pressures.
- Normative: norms of appropriate behaviours, identity, societal purpose, etc.
- Formal-regulative: regulations and policies and laws and standards.

The TEF considers network embeddedness particularly in terms of network position; for example, "core", "middle" and "peripheral" firms. These are understood in relation to institutions, with core firms creating or determining or shaping institutions, and peripheral firms not being institution makers but equally being less bound by institutional forces in the network. These varying institutional capabilities derive from the power associated with different network positions, and core and periphery and network embedding must therefore also be understood in terms of determinants of power, especially the quantity and quality (e.g. trust) of relational ties (Henderson et al 2002).

C. Research Methods

This research approaches the notion of embeddedness from a critical realist perspective (e.g. Mingers 2004), with place, institutions and networks understood to have an intransitive existence independent of our knowledge of them, and to generate causal mechanisms that impact, for example, the economic trajectory of digital enterprises. The stratified nature of reality within a critical realist paradigm (*ibid.*) means that these foundations of embeddedness cannot be directly experienced. Our understanding of them must therefore be built from triangulation which was implemented using a field study research strategy – "study of single or multiple and related processes/phenomena in single or multiple organizations" (Palvia et al. 2007:2) – and a multi-method qualitative research design.

The potential frame for the study was all of Latin America but time and access constraints meant we focused on just four countries – Argentina, Brazil, Colombia and Mexico – the four largest economies which together account for around three-quarters of regional GDP (IMF 2016). Given their importance to the future digital economy, we decided to focus on digital start-ups (DSs), which we defined as recently-created enterprises that only produce digital products (goods or services). We operationalised this by selecting enterprises less than three years old at the time of contact. However, to ensure source triangulation, we also included in the field study other organisations that support or relate to digital start-ups.

In total, 40 organisations were incorporated into the study: 19 digital start-ups; five "accelerators" which act to facilitate growth of digital start-ups; five digital economy investors; and 11 other digital eco-system actors (government agencies, digital multinationals, and training, education and research agencies). There being no directory of

digital start-ups, they and the other agencies were identified mainly by purposive sampling, partly using snowballing techniques. Semi-structured interviews were conducted in these organisations during 2013-2015 with 46 interviews conducted in total (six respondents were interviewed twice). Some method triangulation was incorporated through direct observation of four events: two "investors' days" at which digital start-ups pitched business plans (one in Mexico, one in Argentina), and two "Startup Weekends" that were mainly training events for actual and potential digital entrepreneurs (one in Mexico, one in Colombia).

Data from the different sources and methods was transcribed as text and coded via NVivo using template analysis (King 2012). Initial codes were created deductively on the basis of the TEF but with later iteration – removal and addition of codes – as analysis proceeded. For dissemination purposes, the names of all organisations involved were anonymised.

D. Findings

D1. Hybrid Industry Regime Embeddedness: Product and Digital Sectors

As conceived and operationalised within the TEF, enterprises are embedded within a single industry regime. However, what emerged from fieldwork is that digital start-ups are different, and – to varying degrees – have a dual or hybrid embeddedness that relates to two different industry regimes. They are embedded within a product (goods or services) sector: for example, "Investarg" that enables online stock market investing within the local financial services sector; or "Domserv" that operates a web service for hiring domestic employees within the recruitment sector. But they are also all embedded within a cross-cutting "digital sector".

The extent of institutional and relational forces and, hence, embedding, differs in these two sectors. Typically the product sector is mature, having been in existence for decades. There exists a relatively-formalised set of knowledge and regulations; there exist common mindsets and norms. As Geels (2014) notes, these institutional forces act as a constraint on innovation: the more embedded a firm is, the more difficulty it will have in changing them. And the forces act as a brake on innovation. When start-up "Insurarg" began discussing its plans for online insurance, existing firms and related actors in the insurance service sector sought to dissuade them, and also were unwilling to follow suit because of the lock-in of their existing physical assets and practices. Most digital start-ups must therefore not be so embedded in their product sector that they cannot innovate. If they are, they will seek means to disembed themselves: for example, the e-entrepreneurs behind Insurarg split their digital start-up into a new enterprise, to avoid the normative and cognitive institutional constraints they perceived within the existing company.

On the other hand, DSs must be sufficiently embedded in the product sector that they have sufficient power – sectoral social and knowledge capital, and other resources – to understand the sector, and to battle against the forces of institutional lock-in. Many digital start-up failures can be laid at the door of inadequate embedding in the product sector,

especially a failure of sectoral knowledge. Other digital start-ups struggled when they were too peripheral and weakly embedded. For example, online lens retail start-up "Optocol" lacked strong knowledge of and structural relations within the optometry sector. As a result existing players were able to mobilise their relations: suppliers were persuaded not to sell lenses to Optocol, media contacts were used to put out negative publicity, and policy-makers were lobbied to ban sales of lenses without a visit to an optician. Others still have recognised their lack of product sector embedding and sought to compensate for it. "Intelliad" was set up by a serial digital entrepreneur to work in online advertising. This digital background enabled the start-up to develop a new form of 'intelligent' banner ads for web sites. While readily accepted by other digital firms, the product struggled to scale beyond this niche until Intelliad created new relations in the product sector. It partnered with existing marketing agencies who could 'translate' the product and package it alongside other marketing offerings for their traditional customer base.

This last is an example of hybrid embedding via institutional and relational formation: a structural partnership combining digital and product sector actors; and processes and service offerings that combine digital and product sector components. From this we see that digital start-ups are also embedded within the digital sector. At the most straightforward level, they draw knowledge from that sector – business ideas, processes, technologies – and they draw digital skills. Yet the digital sector contrasts with most product sectors: in terms of actors it is barely a decade or two old; it is often only very recently that it has developed an identity as a sector within the countries of Latin America; and it is still very much in process of institution and relation formation. Hence, it is only recently that there is anything like a digital sector in which digital start-ups could become embedded.

D2. Hybrid Industry Regime Embeddedness: Local and Global

To understand this better, we must understand where the institutions of the digital sector have come from. There are two main sources. First, endogenous sources; especially local core digital firms: those few that survived or emerged from the dotcom crash of the early 2000s in Latin America. Interviewees identified examples including Mercado Libre, Despegar, and Globant. These and a small number of others have created a series of institutions that have given existence and form to the local digital sector. This has been facilitated by the creation of 'accelerators': organisations with the specific purpose of enabling digital enterprises to grow. Finally, as the number of digital start-ups has grown, entrepreneurs themselves have taken sector-forming actions.

In a number of cases, institution-formation has organisational substance and therefore relates to both institutional and network aspects of embedding:

- creation of national digital industry associations, a number of which are linked regionally via ALETI, the regional ICT sector federation;
- creation of informal communities of practice or support groups based around specific technologies or techniques or enterprise types and locations;
- holding workshops, hackathons and similar events.

These in turn build cultural-cognitive and normative forces: a common language in talking about the digital sector, a common mindset about digital enterprise, a sectoral identity,

some cooperative norms, etc. And functional-cognitive foundations are built by sharing ideas and knowledge, with circulation increasingly rich through the sectoral organisations noted above, through the core firms – whose staff often break off to set up their own digital start-ups – and through the accelerators which provide explicit training events but which also informally share more tacit knowledge. More generally, core firms and accelerators act as network hubs within the digital sector – core nodes in the ecosystem – that link out to sources of skills and knowledge (e.g. universities), sources of finance (e.g. angel and venture investors), sources of custom (e.g. large organisations), and sources of formal-regulative institutions (e.g. policy makers in local and national government).

Notwithstanding this recent upward curve of structural – organisational network and institutional – formation in the digital sectors of Latin American countries, endogenous sources have been historically weak. Part of the solution – or perhaps part of the underlying problem – has been extensive use of exogenous sources of institution formation. In particular, this has come from the global core for the digital economy: the United States. Much of this relates to functional-cognitive institutions in the form of technical knowledge and routines; particularly the use of Lean Startup (including related techniques like Business Model Canvas).

Lean Startup is a framework or more precisely a methodology for enterprise start-up that originates in the US, and it had been used by virtually all of the digital start-ups interviewed for this research. Its dissemination into the Latin American digital economy has been facilitated by a number of intermediaries. Some are US-based, such as the non-profit organisation UP Global (taken over by Techstars in 2015) which has run a series of events around Latin America such as "Startup Weekends", based around the Lean Startup methodology. Others are Latin America-based, such as the local accelerators which provide similar training workshops and will also arrange mentoring on start-up methodologies for local e-entrepreneurs. Likewise some national government programmes – such as Apps.com in Colombia – have arranged for US trainers to come in to teach Lean Startup. As a result, Lean Startup and Business Model Canvas had become institutionalised as the "industry recipe" for digital start-ups in Latin America: entrepreneurs, accelerators, investors all expected to see the rapid cycles of product development, market testing, pivoting, and feedback loops prescribed by these frameworks.

Even more concretely, some Latin American digital start-ups had built their whole business model on imitation of US digital businesses. As one interviewee noted: "Mercadolibre.com was based on eBay, Despegar.com was based on Orbitz … Restorando is based on Open Table, Best City is like Amazon" and other e-entrepreneurs admitted they had copied specific US businesses and transplanted them for Latin American markets. Alongside visits to the US and looking at US businesses online, other formal channels for this type of knowledge transfer from the US to Latin America include media sites such as Hacker News and TechCrunch, to which the great majority of e-entrepreneurs subscribed.

These various sources for flows of knowledge did more than just transfer functional-cognitive knowledge; they also developed other institutional forces within Latin America. Those involved in digital business came to share a common mindset, for example, around expectations of success and failure (greater expectations of success but also greater

allowance for failure than found more typically in Latin America); and around normative values (a common hemispheric identity of digital enterprise, and interviewees commenting on the 'dress-down' norms found at digital sector events – even those run by government – which diverged from broader business norms in the region). There were even some signs of US influence on formal-regulative institutions in the region. For example, Google had set up Google Policy which includes policy advocacy among its activities in the region; supporting laws on issues such as e-business and intellectual property rights that would tend towards regulative convergence between Latin America and the US.

As a result of this, the digital start-ups in Latin America have a second type of dual or hybrid embedding: that they are embedded in a mix of endogenous and exogenous – perhaps, more simply, local and global – digital sector institutions. They draw knowledge, worldviews, values, and regulations from the local context but they also draw the same things directly from the global/US context (and indirectly given US influence on the local context institutions). An alternative perspective, then, would be that this represents a partial disembedding from the local context. One could see this quite readily in the interviews, with US terms and ideas and businesses frequently cropping up, and with the US often seen as the aspirational utopia: Silicon Valley as the promised land that a lucky few might one day reach.

D3. Economic and Socio-Political Environment Embeddedness

Finally, we can identify a third type of hybrid embeddedness: this time a triple rather than dual embedding, and reflecting the domains described in the Triple Embeddedness Framework. While the boundaries of the three domains are fuzzy, the findings above have particularly sought to discuss the industry regimes (digital and product, local and global) into which Latin American digital start-ups are (partly) embedded. But they are also embedded into their economic environment and their socio-political environment, as we now explore further.

Embeddedness in the local economic environment is something of a mixed blessing. For example, in comparative terms, GDP per capita levels and digital connectivity levels are lower in Latin America than in the global North, which constrains opportunities in – and the size of – the local digital economy (OECD 2015). However, there is a growing middle class in Latin America that is increasingly digitally-connected, and this provides the main market and future opportunity for digital start-ups. Knowledge of this consumer group, knowledge of markets and supply chains in product and digital sectors, and broader knowledge of economic institutions in Latin America has been the foundation for all of the digital start-ups. As an example, a change in the law in Colombia led to a sudden increase in the number of older, second-hand cars being bought and run, and a demand from middle-class owners for trustworthy spare parts and servicing. Recognition of this opportunity underpinned the creation of the "Autocol" digital start-up which provides online booking of repairs and servicing with guaranteed parts sourced online and fitted by certified auto-service partners.

This local institutional knowledge and broader embedding in organisational relations has acted as a barrier to external competitors: interviewees cited examples of US and other global North digital firms that had failed or struggled to enter the Latin American market. Of

course, that works two ways – digital enterprises built on specific local knowledge/relations and a market niche would themselves struggle to internationalise. However, a number had been able to use their local economic base as a source of wider competitive advantage, with one-third – typically those offering non-location-specific digital services like education or online marketing, and able to work in English as well as Spanish/Portuguese – having overseas customers.

There was a somewhat similar sense in relation to investment. Local economic embedding – again institutional knowledge and network relations – gave digital start-ups access to finance at various points in their lives: conception-stage investment from family/friends; early-stage investment from government grants or local seed investors; growth-stage investment from venture capitalists. In some cases, this investment would come from external sources. Typically this would be US investors – brokered by the national accelerators or by larger digital firms in the local market – who otherwise would not invest due to their lack of knowledge of Latin American markets and other institutions.

But the US funding ebbed and flowed depending on the stability of those markets. Inherent institutional instabilities in Latin America have led to periods of economic instability, including currency devaluation (Reyes & Sawyer 2016). This has dissuaded potential digital economy investors and/or made them shift only into lower-risk investments. Institutional constraints have also hampered local investment. The limited history and size of the digital economy means there is limited knowledge of it among investors; not just the lack of technical knowledge of how to value digital enterprises and the tendency to use traditional methods which discourage investment, but also a lack of narratives among investors of successful investments. In addition, the high attrition rate of digital start-ups is problematic in some countries where complexity or risk of liability and bankruptcy legislation steers investment into safer, more traditional sectors.

This last point can also be seen as an example of political embeddedness: the way in which digital start-ups are enmeshed in the formal-regulative institutions of their context. There have certainly be benefits as national governments around Latin America have sought to promote the digital economy. ICT infrastructure policy has accelerated the digital foundations necessary for the start-ups and their markets through a mix of deregulation, encouragement of competition, reduced taxes, but also interventions including subsidies such as universal service funding, and broad-scale programmes for ICT skills training (Gallego & Gutierrez 2015). More specifically there have been digital economy policies that have been almost entirely state interventions: training programmes to build higher-level skills such as programming or Lean Startup, seed funding for digital start-ups, and institution-formation. The latter has included less formal relations such as mentoring programmes or digital enterprise networking events, or more formal organisations such as digital accelerators and incubators. Interviewees testified to the way in which these government actions had directly supported formation of individual enterprises; indirectly acted "as a catalyst in weak and embryonal ecosystems, leveraging or creating institutional infrastructure and the actors that bring them to life" (Kantis et al 2012:39); and even more indirectly raised and legitimised the profile of digital start-ups helping, for example, to encourage others to invest.

But political embeddedness also has its downsides. Complex labour laws, weak intellectual property protection, cumbersome contract enforcement mechanisms, business unfriendly bankruptcy laws, and ineffective judicial enforcement systems were all reported by interviewees to have had a chilling effect on digital business investment and activity. So too do the vulnerabilities of political institutions more broadly in Latin America which bring periods of political as well as macro-economic instability.

Finally, knowledge of the local social environment was essential for the digital start-ups: of course knowledge of Spanish and/or Portuguese but, beyond that, interviewees mentioned country-specific accents and idioms that help make a connection with local consumers, and build business. Trust was also repeatedly mentioned by interviewees: something that particularly tends to be in short supply when national institutions are relatively weak (Martinez & Williams 2010). In combination with local market knowledge, working to build trust meant different things: for some digital start-ups, it meant working with established partners in the product sector; for others, it meant incorporating human intermediaries into transaction chains since customers were used to human contact.

But general lack of trust could also provide a space for innovation. In the Autocol example already cited, a key problem for consumers was their lack of trust in auto-servicing firms and the lack of knowledge and circulating information about quality of parts and servicing. Identifying these institutional weaknesses, Autocol was able to build an online business which creation an institution of trust. Similarly, Easy Taxi has been able to expand its online Uber-like business into a number of Latin American markets partly because local taxis were not trusted due to safety fears (Morantes 2016). So while, in general, institutional shortcomings in Latin America constrain digital start-ups, they sometimes highlight a business opportunity.

E. Discussion

Far from the notions of a disembedded digital economy, the Latin American digital start-ups we studied are multiply-embedded. We found evidence that they are embedded in all three of the domains identified by the TEF: technical knowledge, worldviews, norms, regulations and relations from industry regimes underpin the activities of e-entrepreneurs and their enterprises but can be a drag on innovation; the economic environment provides their markets and funding though also constrains these as well; the socio-political environment similarly and simultaneously supports and inhibits them.

Inherent to the TEF, and reflected in these findings, is a multiple embedding in these three domains: all enterprises are seen as somehow hybrids of industry, economic and socio-political context – what Geels calls a combined vertical and horizontal embedding. But – alongside this domain hybridity – the digital start-ups were seen to have two other types of dual or hybrid embeddedness. First, was a sectoral hybridity, with the DSs embedded at the intersection of both a more-established product sector and a less-established, emergent digital sector. Second, was a scalar hybridity, with DSs embedded more-strongly in their local (national) context and less-strongly in a global (US-oriented) context.

These different dimensions of embeddedness were interconnected. In particular, there was a lack of institutions within the local digital sector. Yet, as we have seen, institutions of all kinds – functional-cognitive, cultural-cognitive, normative, and formal-regulative – are required if enterprises and their broader sectors are to function. So, especially in the last decade or so, there has been a necessary process of institution formation in Latin American digital economies. Local actors have worked to create these institutions; for example, government has set up policies and organisations; entrepreneurs and accelerators have created communities, groups and events; local associations have created norms and shared technical knowledge. But institutional forms have also been drafted in from outside, especially from the US: technical ideas, business models, start-up methodologies, digital sector norms and aspirations and identity, even policy templates.

US actors have partly been responsible for this institutional induction, and for some level of resource inflows such as skills and finance. But a key role has been played by intermediary organisations. Some of these – such as UP Global or Google Policy – have been US-based organisations stepping in to connect with actors within Latin American markets. Others – such as accelerators and government agencies – have been Latin America-based organisations stepping out to connect with US actors.

The incipient – weak or absent – nature of institutions and relations in the digital sector is mirrored by the typical strength of institutions and relations within the product sectors in which digital start-ups operate. As Geels (2014) predicts, strong embedding within those institutions is generally a barrier to innovation: a mutual interactive process of institution-formation and behaviour-shaping means that long-term incumbents have limited incentive to innovate and limited ability to do so. Hybridity here has been an asset for many DSs. Being partly embedded into two sectors, they are not fully-embedded in either (or, where they are strongly embedded in the product sector, they have taken actions to partly disembed themselves, as in the case of Insurarg). They have been able to cross-fertilise knowledge and other institutional forms from one sector to the other (often globally-sourced in the case of the digital sector). But that disembedding must not be too great: again, we saw examples of relatively-disembedded enterprises struggling or failing as a result of their lack of knowledge, relations, norms, etc.

We thus get a sense of what might be called "Goldilocks embeddedness": those digital start-ups that succeed do so because they are neither too heavily-embedded nor too heavily-disembedded but their level of embedding is "just right". The clearest evidence of this related to the product sector but we could also understand it in other terms. In relation to the digital sector, institutions and relations are relatively formative so enterprises cannot yet be too-strongly-embedded in this sector. In local/global terms, DSs that were internationally successful were sufficiently embedded in their local markets to understand them and to build a business, but not so embedded that they could not transfer their services or business model into overseas markets.

We can also interpret this "just right" notion in terms of network position and embeddedness, using Geels' (*ibid.*) language of core and periphery. Within the product sector regimes, successful DSs must not be so core that they are trapped as if in institutional concrete, but not so peripheral that they lack access to circuits of knowledge and capital and

other resources. Within the digital sector regime, core actors – long-standing firms and accelerators and e-entrepreneurs – have been institution-makers across the whole gamut of cognitive and normative institutions. They have also been connective hubs, intermediating between actors and linking digital start-ups to ideas, investors, mentors, etc. But we can expand the scope of the network we analyse to a global level.

From this perspective, the US is the core of the digital economy, and Latin American digital sectors are on the periphery. The US has been an institution-maker and Latin America an institution-taker if we think of all the types of knowledge, norms, policy forms, etc that flow from North to South, enabled by "core-periphery" intermediaries like UP Global and "periphery-core" intermediaries like Latin American accelerators. This one-way flow reflects the relative institutional shortcomings of the Latin American digital economy: a relative institutional vacuum into which US institutions will flow. And we saw other disadvantages of the institutional shortcomings associated with economies more on the global periphery[2]: instabilities, uncertainties and absences that all constrain levels of digital start-up, investment, growth, etc.

But peripherality is not all bad news. One can envisage a semi-permeable membrane around Latin America's digital economies. Institutions – at least in the form of knowledge flows – move fairly readily from core to periphery across that membrane, assisted by the intermediaries that act as transport points. But flow in the opposite direction is more constrained. This limits foreign investment but it also partly protects local economies from competition – only those who are embedded inside the membrane understand local institutions well enough to compete. And understanding those local institutions means understanding both their strengths but also their shortcomings; shortcomings which can sometimes be commuted into digital business opportunities as start-ups replace weak existing institutions with stronger digital versions.

If relative peripherality was the first main feature of Latin American digital start-ups compared to other types of start-up, then this last point touches on their second main feature: digitality. We see this directly reflected in the sectoral hybridity: the straddling of two sectors or industry regimes because all DSs belong to the digital sector. The relative lack of institutional and relational ossification in this sector has been the springboard for innovation: for many entrepreneurs and enterprises their level of embeddedness in the digital sector is "just right". To a small extent, digitality may also shape the scalar hybridity: digital enterprises are more readily visible across national boundaries and to global (e.g. US) actors; and they can more readily reach out across those boundaries e.g. to customers, investors and others. So, again, at least for some DSs, they have the "just right" level of embeddedness in both local and global contexts.

[2] Latin American economies are perhaps better thought of as "semi-periphery", but for simplicity we will just focus here on their relative peripherality vis-a-vis the US.

F. Conclusions

Digitality – including digital enterprise – is associated in some readings with a disembedding; a release from institutional forces; particularly localised institutional forces. There is an element of this seen from the current research: these Latin American digital start-ups can be read as partly disembedded from certain institutional environments. This allows them to combine knowledge across sectors and across scales; a capability that underpins their innovation, internationalisation and flexibility of operation. But, conversely, we can equally read them as embedded in multiple environments: product and digital sectors, local and global scales, vertical (industry regime) and horizontal (economic and socio-political environment) domains. More than simply being multiply embedded, they are hybridly embedded; a hybridity that draws from the two particular features of Latin American DSs – that they are relatively peripheral in the world economy, and that they are digital. Particularly from their sectoral and scalar hybrid embedding arises the potential – but also the necessity – for cross-fertilisation of knowledge. Where network connections and extent of embedding across the different contexts allows this cross-flow of knowledge, then innovation and growth are the outcome. Where embedding and connections are too weak, problems arise.

In terms of the three types of embedding presented earlier – place, institutional, network – there was little evidence found of physical embedding in an actual locale. There were physical elements but they were transient: the meeting of an association, or attendance at a Startup Weekend. The "local" and ideas of place were both understood and analysed here largely in terms of the national context of institutions and relations. The digital start-ups were embedded in the space of networks. This was seen especially in relationships mediated online with suppliers and customers and other sources of knowledge and resources. Where these were US or other overseas networks, there was some element of zero-sum game: that embedding in global networks mirrored some disembedding from local networks. But the digital start-ups nonetheless remained clearly embedded in local networks: there were few if any that were truly "born global".

Being at least partly embedded in local industry regimes, economic and socio-political environments in developing countries puts Latin American digital start-ups at the relative periphery of world economic networks. This did have its downside in relation to weaker institutions and relational ties. But these were less than anticipated, partly because their digitality helps DSs overcome distance from the economic core, and partly because Latin America is more semi-periphery than periphery. As a result, ideas and some other resources could flow in to assist the start-ups but they had some relative protection from external competition, and could even find business opportunities in the weaknesses of local institutions.

Governments in Latin America have been relatively supportive of digital start-ups; implicitly recognising the need for institution formation within the digital sector and developing a set of interventions that have enabled this. This certainly needs to continue. As reflected in the partial global embedding of DSs, local digital sector institutions are still relatively weak, and government can particularly recognise the value of network intermediaries that are themselves institution builders and relation builders both within the local digital economy

and between local and global digital economies. The dual sectoral embeddedness of digital enterprises is harder to address but it reflects a broader issue: that the notion of a bounded digital economy is giving way to a bleeding of the digital economy into all product sectors. Hence, that product sector policy must increasing become digitally-literate, and recognise the hybridity seen on the ground.

One strategic implication for Latin American digital start-ups is their need to recognise the multiple and hybrid nature of their embedding. For example, to recognise the Goldilocks "sweet spot" and self-analyse the extent of constraint and freedom imposed by embedding in both digital and product sectors. Another implication is the applicability of business ideas, of business strategies, and of business methodologies like Lean Startup which are all accessible because of the DSs partial global/US embedding. These assume relatively mature and stable institutional contexts; enabling a focus solely on the economics across a single supply chain. This assumption mismatched the complexity of sitting at the intersection of two sectors, and the relative volatility of being embedded within a developing country institutional environment. The result is a continuous need to customise knowledge to the reality and complexity of DS embedding. For example, with Lean Startup needing to be re-scoped to take a broader bi-sectoral and socio-political remit, and with the start-up process understood to be more contingent due to institutional shortcomings.

Finally, we can note some theoretical implications. The Triple Embeddedness Framework was a useful starting architecture for understanding the embeddedness of digital start-ups in Latin America. But because of their two features – digitality and peripherality – these enterprises ask for a more complex conception of embedding; particularly in understanding the industry regime. The sectoral hybridity that arises from digitality requires two industry regimes to be analysed. The scalar hybridity that arises from peripherality requires multiple scales of industry regime to be analysed. Both of these complexify the ideas of core and periphery with, for example, local accelerators being peripheral to the core (US/global) industry regime, but core to the peripheral (national/Latin American) industry regimes. These actors also highlight the need for analysis of network positions including hubs and intermediaries. These were seen to be essential to institutional flow between the different contexts into which Latin American digital start-ups were partly embedded, and particularly to the core process highlighted in the study: the flow of knowledge.

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