The role of sustained innovation in the competitiveness and longevity of Hidden Champions

This paper explores the case of Hidden Champion firms and in particular looks at the role which innovation plays in enabling them to sustain their position as internationally competitive organizations over a long period. It draws on primary and secondary material to explore six cases in detail and identifies five key attributes which make up their 'innovation capability' – building a strong knowledge base, developing extensive high performing networks of collaborators, embedding innovation routines to enable them to repeat the innovation trick, wide exploration of available innovation space and developing dynamic capability – the ability to review, reconfigure and change their innovation models and approaches to suit a constantly changing external environment.

Este artículo explora el caso de las empresas denominadas 'Campeones Ocultos' y en particular estudia el papel que la innovación juega en capacitarlas para el sostenimiento de su posición como organizaciones competitivas e internacionales a largo plazo. El artículo se basa en documentación básica y derivada para explorar en detalle seis casos e identificar cinco atributos claves que constituyen la 'capacidad de innovación': construir una base fuerte de conocimiento, desarrollar redes extensivas de colaboradores de alto rendimiento, incorporar rutinas de innovación para permitirles repetir el secreto de la innovación, una exploración amplia del espacio de innovación disponible, y desarrollar la capacidad dinámica, esto es, la capacidad de revisar, reconfigurar y cambiar sus modelos y enfoques de innovación con el fin de adecuarlos a un entorno externo en constante cambio.

Artikulu honek «Ezkutuko Txapeldunak» izeneko enpresen kasua aztertzen du eta, bereziki, enpresa horiek epe luzean organizazio lehiakor eta internazional gisa mantentzeko berrikuntzak nola gaitzen dituen. Artikuluak lehen eta bigarren mailako materialak ditu oinarri sei kasu zehatz-mehatz aztertzeko eta «berrikuntza gaitasuna» osatzen duten bost atributu gako identifikatzeko. Bost atributu horiek honakoak dira: ezagutzaren oinarri sendo bat eraikitzea, errendimendu handiko kolaboratzaileen sare zabalgarriak garatzea, berrikuntzaren sekretua errepikatzea ahalbideratzeko berrikuntza-ohiturak txertatzea, eskuragarri den berrikuntza-espazioaren esplorazio zabala eta gaitasun dinamikoa garatzea; hau da, dituzten berrikuntza-eredu eta -ikuspegiak berrikustea, birkonfiguratzea eta aldatzea, etengabe aldatzen ari den kanpoko ingurunera egokitzeko.

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1. INTRODUCTION

What are you having for breakfast today? Chances are there might well be some cheese, perhaps a yogurt, or some delicately coloured juice drink on your table. It might interest you to know that you are in good company – around one billion people like you are consuming one of the many products enabled by the Danish company Christian Hansen. For nearly two hundred years they've been supplying a huge range of live bacterial cultures to the food industry around the world. Their natural food colours are also extensively used and they have a growing presence in the field of healthcare via probiotics.

If you paid in cash when you went shopping for those breakfast delicacies then there is a pretty good chance that the banknotes you exchanged were made by another company, De La Rue. They too have been working in their chosen business niche for about two hundred years, specialising in high precision printing. They got off to a good start, inventing the modern playing card in 1831 and diversifying through postage stamps, identity documents and high security products like banknotes.

Cleaning up after breakfast you might well reach for your vacuum cleaner. These days there's a good chance it'll be a Dyson – one of a growing range of domestic electrical appliances characterised by powerful motors and innovative

airflow features. Compared to our previous examples the Dyson company is a new kid on the block but one which in forty years has grown from a start-up to a significant global player with revenues around €3bn and close to 9000 employees.

Turn on your air conditioner (or possibly your heating system) and the chances are the pump driving it is made by the German company Wilo. Another long-established firm, Wilo was founded in 1872 and has evolved into one of Europe's most successful manufacturers of pumps for a wide range of domestic and industrial applications.

Hop into your car – and spare a thought for the various lights attached to it. Headlights, sidelights, indicators, brake lights – there's a pretty good chance that they will be made by another hidden champion, the German company Hella (or to give it its full title, Hella KGaA Hueck & Co). They are also significant players in the expanding and exciting world of automotive electronics, playing a key role in developing driverless car possibilities.

And if you ever need your car (or aeroplane or truck) modified, upgraded or configured for some special application there's a good chance you might approach the Marshall Group in the UK. Once again a major global player, especially in the specialised area of adaptive engineering, one which has grown successfully from its roots in 1909 providing engineering support for cars and aircraft.

We could go on but the point is clear. These are mostly not household names – indeed many of them operate in business-to-business markets below the radar screen as far as most consumers are concerned. They are examples of hidden champions, quietly getting on with the job of being very good at what they do and innovating on a continuing basis to ensure they preserve their competitive edge. It might be tempting to see them as fortunate niche players, comfortably placed in quiet markets and insulated from competitive pressures. But this is not the case – they operate in highly competitive global markets and have managed to hold their own and defend their position, often against much larger rivals. And they also share another characteristic – they moved early in their development to work in international markets, and are now significant export performers with an extended footprint of manufacturing and R&D operations around the globe. Table 1 summarises their achievements.

The term hidden champion was coined back in 1996 by Hermann Simon who looked at the characteristics of some of 'the world's best unknown companies' (Simon, 1996). Research suggest that there are hundreds of other examples whose names are not well-known but which have become major players in their chosen niche (Simon, 2009). They tend to be successful performers on a global stage – for example one study of 200 German examples suggested they maintained a growth rate more than three times the German average over the next decade (Venohr and Mayer, 2007).

Table 1. **HIDDEN CHAMPIONS**

Company	Founded	Current sales (€bn)	International sales activity	Active operations outside home country (including R&D)	Current employees
Christian Hansen	1873	€1	52 % outside Europe	30 (4 R&D centres)	3050
De La Rue	1813	€0.3	73% outside Europe	25	3150
Marshalls	1909	€1.6	Won UK Queen's Award for International Trade, 2016	Extensive international partnerships, especially in aerospace	5000
Wilo	1872	€1.5	48% outside Europe	60	7700
Hella	1899	€6	32% outside Europe	35	34,000
Dyson	1980	€3	81% outside Europe	4	9000

Source: Own elaboration.

Hidden champions are predominantly small/medium sized enterprises (SMEs) with most having a turnover below $1bn and an employee profile reflecting that. Whilst some have continued to expand they retain many of the characteristics of the earlier generations of the business, and in particular the commitment to tight focused leadership.

2. SMART SURVIVORS – THE KEY ROLE PLAYED BY INNOVATION

Above all hidden champions are survivors. Any organization might get lucky once or twice but to survive over the long-term requires a lot more effort and conscious attention. Our examples are typical – many hidden champions are decades old and a significant number are members of the '100 club' – companies which have celebrated their hundredth anniversary.

Their survival is not about scale. They offer an important reminder that big is not necessarily beautiful; while it might mean organizations have extra resources to draw upon when times get difficult this alone does not guarantee survival. The statistics on membership of the Dow Jones index give a sobering reminder of that –

of the large corporations which were present in 1900 only General Electric made it through to the year 2000 (Foster and Kaplan, 2002). And recent survival rates have been getting worse (Reeves and Pueschel, 2015).

Studies of 'centenarians' and even older organizations suggest that they share a number of traits which we also find in hidden champions – for example continuing to build and connect with diverse external networks to avoid stagnation or becoming trapped in particular technology or market fields (Reeves, Levin and Ueda, 2016). Their survival is also about core values which pervade the company and bind it together in ways which structures and departments may not. Several of our examples stress innovation and entrepreneurship as core values, emphasising behaviours which seek new opportunities and explore in novel directions and rewarding and reinforcing such behaviours. For example, the principle of 'entrepreneurial responsibility' is deeply embedded in Hella's approach over generations, expressing both the requirement that employees contribute their ideas and the responsibility of managers to create the context in which those ideas can be built upon to create value[1].

It is also significant that several of our hidden champions – and a significant number of hidden champions examined in other studies – are private companies, able to shape their own strategies without reference to external stakeholders. Marshalls is still run by members of the family while Hella was also a family concern until 2016 when a portion of the company was floated on the German stock exchange.

Survival involves an approach which by its nature is agile and resilient. These might be 'buzz' words today but essentially they characterise what these players have been doing for an extended period of time. They have survived and grown through an ability to navigate stormy waters and to weather often difficult external market and technological conditions.

Above all it requires a commitment to innovation – being prepared to change what the company offers and how it creates and delivers that offering. Such innovation behaviour is not about having a lucky new product or service at the right time, or a magic machine which enhances productivity. It is about a sustained organised commitment to embedding innovation as 'the way we do things around here' and the underlying structures and processes to enable it to happen.

One particular mode of innovation in which hidden champions excel involves what could be called 'position' innovation – extending and exploring their market base. The process of positioning products and services in new seg-

[1] The concept of 'entrepreneurial responsibility' was presented by Jürgen Behrend, owner and Managing Partner of Hella at a meeting at the HHL Business School in Leipzig in 2012 discussing innovation in industry. It refers to the company's underlying value system he described as 'entrepreneurial responsibility'. He explained it as a two-sided social contract – the expectation that employees will play a part, will take on the role of innovation champions. And the responsibility amongst senior managers to create the conditions in which they are able to do this.

ments or geographical regions requires effort and involves risk but the evidence is that firms which do so find powerful new learning opportunities. Swimming in unfamiliar oceans builds capabilities – firms have to adapt products and services, develop complementary networks, partner with new collaborators and learn about differences in user needs. As a result they are not only able to extend their export shares but also to make use of such new knowledge in their wider innovation offerings (Crespii, Criscuolo and Haskel, 2008) (Silav, Afonso and Africano, 2012).

Our example companies have been doing this for a long time – for example, Christian Hansen began working in the US market a mere five years after the company was established and very soon had a factory working there. De La Rue can trace its international footprint back to 1860 when it began printing currency for the island of Mauritius and by 1862 the US Confederate states were using postage stamps produced by the company.

Building capability to organize and manage innovation across multiple dimensions – product/service, process and position – is of central importance. But there is also a need for what might be termed 'dynamic capability', constantly reviewing the ways they innovate and being prepared to change or adapt the fundamental model underneath. Such 'innovation model innovation' helps the organization move on from its initial entrepreneurial start-up model to one which can deliver the agility and resilience which we described earlier.

This article explores in more detail the ways in which hidden champions work with innovation as a strategically managed process and the ways in which this helps underpin their survival and growth.

3. UNDERSTANDING THE INNOVATION ENGINE IN HIDDEN CHAMPIONS

Behind every global business there was once an entrepreneur (or two) – Henry Ford, William Procter and James Gamble, Bill Hewlett and Dave Packard, George Eastman are good examples. Making the journey from those early days to where those companies are today wasn't easy and involved negotiating a series of strategic challenges along the way.

Each of our examples also began as a start-up – an entrepreneur spotting an opportunity. For David Marshall it was the idea of using the new idea of motor cars to provide an early chauffeur-driven taxi service in the town of Cambridge in 1909. And for Sally Windmüller it was the chance to take his business selling whips, horns and lights as accessories for the horse-drawn vehicles of his time and apply these skills to the newly emerging world of motor cars, founding his company (Hella) in 1899. For Christian Hansen it was the research he was doing on digestive enzymes

which gave him a clue about the need for a business to produce products like rennet – his was a very early example of a science-based university spinoff. For Thomas de la Rue it was adapting the emerging science of typography to specialist stationery production – including inventing the modern playing card.

Caspar Opländer's original factory in 1872 was set up to produce copper and brass distillation equipment for the drinks industry. Wilo developed from this primarily through a commitment to innovation, developing the world's first heating pump in 1928. And although James Dyson is a relatively recent addition to this group he too began life as a start-up and his autobiography describing his early struggles to innovate is well titled – 'Against the odds'! But his persistence paid off and the business is now a world leader in domestic appliances, motor and flow technology and now electrical storage systems (Dyson, 1997).

For each of them the bright idea which got them started was just the beginning of a long innovation journey, one which forced them to adopt an approach which was both agile and resilient. Growing through innovation not only involves negotiating in a turbulent world of changing technologies, markets and competition, it also involves the need for reviewing and changing the innovation model itself. And it requires a different approach, putting structures and processes in place where there was once fluidity and informal exchange. Striking the balance between creativity and control, between exploration and exploitation, between do better and do different – these are the day-to-day challenges of organizations moving from entrepreneurial start-up mode to long-term large-scale activity.

So how do such organizations build the foundations for long-term sustained innovation-led growth? Extensive research (Tidd and Bessant, 2018) suggests five core themes are involved:

- Build competence – grow through what you know.
- Build via networking – organizations don't have to know it all but they do need the ability to find, form and build high performance networks of knowledge.
- Build a capability for innovation, embedding key behaviour patterns into routines which can be repeated and form the underlying structure and process.
- Focus innovation in key strategic directions, fully exploring and exploiting innovation space.
- Build dynamic capability – the ability to review, reconfigure and change their innovation models and approaches to suit a constantly changing external environment.

We will look in more detail at each of these in the following section.

3.1. **Competence – growing through what you know**

Our example companies may have begun with a start-up idea or opportunity – but they didn't rest on their laurels. They built their businesses on *innovation* – changing what they offered the world and how they created and delivered those offerings. Their ability to do so required continuous investment in building a knowledge base – through R&D, learning by doing, learning by exporting, etc. – which they were then able to deploy in a continuing stream of innovations.

For example, Marshalls had to learn to repair and maintain their vehicles by themselves, building a deep understanding of how to modify things. Whilst the motor car brought many benefits, David Marshall saw an early opportunity in the idea of a 'sports car' – one where driver and passengers were not enclosed in a cabin. He was already selling and repairing the Austin saloon car in the UK so approached the company with his idea – to be met with the response that they only made 'standard' cars. Rather than give on the idea up he used the skills and equipment in his workshops (where they already knew the Austin car inside out) and converted them, making the first Austin sports car. Later on these skills were transferred to the newly emerging world of aeroplane maintenance and repair as the next generation of the family moved into this business. This core competence in modifying, adapting and reconfiguring was strengthened by extensive investment in design capabilities and tools so that the company grew a strong reputation as an adaptive engineer (Bessant, 2012).

Sally Windmuller's original business drew on a simple knowledge base, one grounded in making and repairing horse drawn buggy equipment. But as he began looking to make accessories like lights and horns for the emerging automobile industry there came the need to specialise and build a deep knowledge base. He began to invest in what we would now call R&D; for example early on he saw a key development was going to be the new acetylene lamp – a big move forward compared to the old oil or even candle powered lights. Recognising the importance of technology led to the award of their first patent, in 1901; this also gave them valuable experience in the process of assembling and protecting intellectual property. By 1908 they had mastered the technology originally developed by Osram for making car lights and began to make headlights, sidelights, rear lights, and license plate lights (Bessant, 2017).

Christian Hansen's painstaking laboratory work gave him an appreciation of the power of a strong science base from which to grow a business. Developing a deep understanding of enzymes and their properties was part of the story but so too was the underlying process technology needed – understanding how to grow, how to stabilise, how to transport them. These skills embedded in his product technology enabled the company to become a major supplier in the world of cheese making and to build a strong applications base out form that. Much later their continued investment in understanding the science of microbiology enabled them to enter increasingly sophisticated markets in food and healthcare sectors.

In similar fashion Wilo's early days as a specialist foundry gave them a deep understanding of how to work complex shapes in metal and maintain precision and quality. De la Rue can trace its technological competence back through a long history of learning about and applying key specialist knowledge in the printing and stationery world. Nor is this a lucky accident; such businesses continue to spend a significant proportion of their turnover on design, research and development activities. For example Wilo spends around 5% whilst De La Rue recently announced a commitment to double their R&D commitment by 2020. Dyson's strengths have increasingly been linked to the high profile of design and development within the company; in 2015 its products generated $2.4 billion in sales but nearly half of this (46%) was ploughed back into R&D.

This sustained commitment to building and managing a knowledge base can be seen in key investment decisions made by our companies. For example back in 1980 Hella was an early entrant into the emerging world of intelligent electronics – a move which was high risk at the time, costing a great deal with little apparent short-term pay-off. But the seeds sown then have blossomed forty years later with the electronics side of their business now the main driver and likely to grow further with the explosion of applications of intelligent electronics in driverless cars.

Similarly Christian Hansen's sustained investment in understanding and learning to work with the underlying science of microbiology has made it an essential player in many markets, able to configure solutions based on this deep long-standing knowledge resource. Wilo's pump technology is underpinned by decades of investment in learning by doing coupled with R&D-based scientific understanding. And Dyson's deep understanding of the key areas of high powered direct drive motors, airflow and fluid dynamics has meant that they could expand on various tools using these principles – hair dryers, hand driers, washer/driers, fans as well as vacuum cleaners. And their increasing interest in cordless battery technologies have led them to open up new possibilities in the whole field of storage technology and its applications.

The effect of this consistent attention to building a knowledge base is that it provides these companies with a rich well from which to draw when opening up new markets, customising and adapting new configurations. Importantly they also recognise the potential for learning and competence-building via working in new markets and geographical regions; for many of them R&D is a globally distributed operation. Such learning provides valuable insights not only of relevance to these local markets but also opportunities for knowledge flows in the opposite direction. 'Reverse innovation' of this kind is increasingly recognised as an important source of ideas and a good example comes in the exploration and adoption of 'frugal innovation' models which have emerged in resource-constrained markets like India and China. Companies like Hella and Wilo are increasingly looking to these regions to provide insights into robust and simpler product designs (Bessant, 2017). Others such as Christian Hansen and De La Rue work extensively with competent partners

in international collaborations; for an aerospace company like Marshalls this kind of international joint venturing is the norm.

3.2. **Not all the smart guys work for you**

Building a core knowledge base is important – but it can also represent a significant cost to small organizations. This has often been used in the past as an explanation of their lack of innovativeness, but the reality is that it is not an issue of knowledge ownership so much as knowledge acquisition and deployment. Innovation is increasingly recognised as a multi-player game, one in which the ability to connect to complementary resources is the key (Birkinshaw, Bessant and Delbridge, 2007).

This concept of 'open innovation' was memorably expressed by a comment made by Bill Joy of Sun Microsystems. He observed that in a knowledge-rich environment of the kind in which we now operate even the largest company has to recognise that '*not all the smart guys work for us*'. This has huge implications for the way the innovation game gets played – essentially it flattens the landscape and creates conditions which are more favourable for smaller enterprises. It is not a problem of being small but rather of ensuring that they are connected – and building networks for innovation has become a key success factor in the 21st century (Bessant and Venables, 2008).

Open innovation as a formal term was coined by Henry Chesbrough in an influential article and book back in 2003 (Chesbrough, 2003). Since then there has been an explosion of interest in the concept and extensive experimentation with new models for managing innovation more effectively based in increasing the flow of knowledge, both into and out from organizations. The somewhat static picture of the last century where knowledge production and ownership were seen as important has given way to more of a trading environment where managing knowledge *flows* is the key skill.

Although fashionable now open innovation is not a new message. Hidden champions have long had an appreciation of this principle and have developed successful growth models which build on a networked approach to innovation, assembling and managing knowledge partnerships. This has meant they have been able to leverage their own knowledge base and also to take advantage of complementary skills and resources held by others through various forms of collaboration.

One important element in the emerging open innovation landscape is the need to maintain a core knowledge base. The widespread availability of knowledge 'out there' does not mean that organizations can abdicate their own responsibility to develop a knowledge base. Instead it is the presence of that knowledge base which gives them the ability to assess and evaluate external knowledge and to deploy it to advantage – a concept termed 'absorptive capacity' (Cohen and Levinthal, 1990). This is the ability of an organization to identify, acquire, absorb and deploy new knowledge in order to grow. If there is no understanding of the core content then

such organizations won't be able to assess what might be relevant to them and they won't have the ability to adapt and configure new knowledge to work for their advantage (Zahra and George, 2002).

Track each of our example companies back and we can see that there is a pattern – consistent investment in acquiring knowledge and deploying it in a series of successful new products and processes. For example during the 1990s Hella recognised that the world of the automobile was changing and that trying to compete along such a complex technological frontier required developing networks and partnerships. They began to put these in place via a mixture of acquisitions, mergers and joint ventures, steered by a deliberate 'network strategy' which helped fuel knowledge-led growth across the business (Bessant, 2017).

This move anticipated what was to become an increasingly important shift in the role of automotive suppliers, moving from being simply shops where components could be purchased towards players with strategic knowledge and capability to put together whole systems. Today's elaboration of that network strategy involves strategic partnerships and joint ventures with dozens of companies supporting along the knowledge frontier and feeding into lighting, electronics, aftermarket and special applications fields. A good example is the current ability to work in the strategically important field of camera-based driver-assistance systems. Hella's ability to work in this space comes from their acquisition in 2006 of a small Berlin-based specialist for visual sensor systems.

Open innovation as a principle involves networking widely outside and inside the organization to leverage a broad knowledge base. Companies like Wilo work with customers in close fashion, with many of their projects essentially a result of co-creation amongst partners, and Marshalls have long recognised the value of such user input in their design work. Nor is the networking confined to external sources; Wilo also operates an internal collaborative platform on which all of its 7000 employees can contribute ideas and build and share these to help mobilise their innovation capacity.

3.3. **Innovation capability - competence is not enough**

Investing in creating and accumulating knowledge – whether in-house or as part of a rich complementary knowledge network – is a necessary but not a sufficient condition for innovation success. We also need to learn how to create *value* from it. Innovation isn't a magical event; it doesn't take place in the way often depicted in cartoons, where a light-bulb magically flashes on above someone's head. It's about turning those ideas – knowledge – into value and that involves a long and uncertain journey. We might reach that destination once by sheer good fortune, but being able to make the journey repeatedly needs much more in the way of a map, provisions, experience.

Research clearly shows that successful innovation requires careful management, organizing key behaviours into embedded routines which define the way we approach the challenges of searching for opportunities, selecting the right ones and implementing innovation against a background of uncertainty (Tidd and Bessant, 2014). And we can see this pattern in the ways in which innovation became increasingly professionalised and embedded within the 'DNA' of our example companies. In Hella, for example, the early days on entrepreneurial luck and being fast and flexible moved on to a pattern with increasing investment in R&D and the setting up of a process innovation team responsible for ensuring the ability to make in high volumes and to consistent quality. Later in its life the company faced significant problems due to too much unfocused product innovation and introduced major reforms around portfolio and product management. And in the 1990s there was a realisation of the need to proactively build networks and alliances in order to be able to innovate along a broad technological frontier. In each case there was evidence of 'innovation model innovation' adapting and reconfiguring the innovation routines to be better focused on meeting the current environmental challenges.

Christian Hansen has a similar history – moving from an early example of a university-based spin out company to increasingly professionalising and organizing the innovation processes to enable their deep knowledge base to emerge into a wide range of products and services. Marshall's moved from another entrepreneurial start-up through a focused reflection on the core competences they needed around working closely with end users and, like Hella, this led to significant restructuring and investment in more professional innovation organization. In their case a significant move forward was to build capability in the 1960s to undertake design work, giving them the opportunity not just to respond to customers but to lead the market and to sharpen their abilities in fast reconfiguration of aircraft and vehicles. Dyson is a comparative new kid on the block but already innovation has been refocused with a strong concentration of R&D and product innovation activity backed by significant re-investment of company profits.

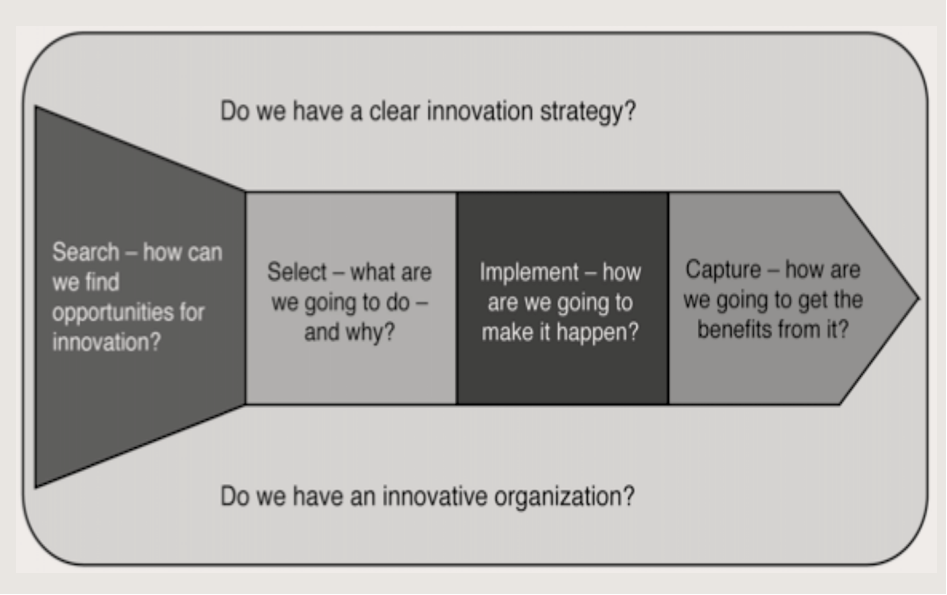
The good news is that we have a wealth of experience on which to draw to help us with this challenge of organizing and managing innovation. Researchers have been distilling the hard-won lessons of failure and the interesting patterns associated with success for close to a hundred years now, and the results converge into a fairly simple model. (See figure 1).

Let's look at this map in a little more detail. The main stages are simple – find an idea to trigger the process, implement it and capture the value emerging from it. In terms of what we might need to do as innovation managers and entrepreneurs this means we need to focus our attention on some key 'stations':

- Searching for trigger ideas.
- Selecting from the possibilities the one we are going to follow through.

- Developing the idea from initial 'gleam in the eye' to a fully-developed reality.
- Managing its diffusion and take up in our chosen market.
- Capturing value from the process.

Figure 1. **SIMPLIFIED MODEL OF THE INNOVATION PROCESS**



Source: Tidd and Bessant, 2013.

Each of these stages poses different challenges. For example, at the search stage we need to recognize that innovation triggers come in all shapes and sizes and from all sorts of directions. They could take the form of new technological opportunities, or changing requirements on the part of markets; they could be the result of legislative pressure or competitor action. They could be a bright idea occurring to someone as they sit, Archimedes like, in their bathtub. Or they could come as a result of buying in a good idea from someone outside the organization. And they could arise out of dissatisfaction with social conditions or a desire to make the world a better place in some way.

The message here is clear – if we are going to pick up these trigger signals then we need to develop some pretty extensive antennae for searching and scanning around us – and that includes some capability for looking into the future.

But we can't do everything – and so the next stage is very much about *strategic* choices. Does the idea fit a business strategy, does it build on something we know

about (or where we can get access to that knowledge easily) and do we have the skills and resources to take it forward?

The trouble with innovation is that it is by its nature a risky business. We don't know at the outset whether what we've decided to do is going to work out or even that it will run at all. Yet we have to commit some resources to begin the process – so how do we build a portfolio of projects which balance the risks and the potential rewards?

Having picked up relevant trigger signals, made a strategic decision to pursue some of them, found and mobilised the resources we need, the next key phase is actually turning those potential ideas into some kind of reality! In some ways this implementation phase is a bit like weaving a kind of 'knowledge tapestry' – gradually pulling together different threads of knowledge – about technologies, markets, competitor behaviour – and weaving them into a picture which gradually emerges as a successful innovation.

It would be foolish to throw good money after bad so most organizations make use of some kind of risk management as they implement innovation projects. By installing a series of 'gates' as the project moves from a gleam in the eye to an expensive commitment of time and money it becomes possible to review – and if necessary redirect or even stop something which is going off the rails.

Eventually the project is launched into some kind of market-place. This might be an external market-place in which decisions to adopt are taken by people who might use the product or service. Or it might be an internal 'market' in which our employees make the choice about whether or not to 'buy in' to the new process being presented to them. At this stage the challenge shifts to capturing value – getting the benefits in terms of financial reward or the satisfaction of social change which is successfully implemented. Even if the innovation itself fails there is still the chance to capture some value from the experience in terms of learning about how to do better next time.

Of course this model plays out in many different ways in different organizations but at heart it's the same underlying process. It describes the ways in which an organization renews what if offers the world and the ways it creates and delivers that offering.

Influencing the process

It's all very well putting a basic process for turning ideas into reality in place. But it doesn't take place in a vacuum – it is also subject to a range of internal and external influences which shape what is possible and what actually emerges. In particular innovation needs:

- Clear strategic leadership and direction, plus the commitment of resources to make this happen. Innovation is about taking risks, about going into new and

sometimes completely unexplored spaces. We don't want to gamble – simply changing things for their own sake or because the fancy takes us. No organization has resources to waste in that scattergun fashion – innovation needs a strategy. But equally we need to have a degree of courage and leadership, steering the organization away from what everyone else is doing or what we've always done and into new spaces.

- An innovative organisation in which the structure and climate enables people to deploy their creativity and share their knowledge to bring about change. It's easy to find prescriptions for innovative organizations which highlight the need to eliminate stifling bureaucracy, unhelpful structures, brick walls blocking communication and other factors stopping good ideas getting through. But we must be careful not to fall into the chaos trap – not all innovation works in organic, loose, informal environments or 'skunk works'– and these types of organization can sometimes act against the interests of successful innovation. We need to determine appropriate organization – that is, the most suitable organization given the operating contingencies. Too little order and structure may be as bad as too much.

As we've seen successful organizations are increasingly those which can build a network around them through which they can tap into the key resources which they need. Building and managing such networks is a key factor in creating an extended form of organization.

- Pro-active links across boundaries inside the organisation and to the many external agencies who can play a part in the innovation process – suppliers, customers, sources of finance, skilled resources and of knowledge, etc. As we discussed earlier, 21st century innovation is most certainly not a solo act but a multi-player game across boundaries inside the organisation and with the many external agencies who can play a part in the innovation process. These days it's about a global game and one where connections and the ability to find, form and deploy creative relationships is of the essence. It's not necessary to know or have everything to hand – as long as you know where and how to get it!

So if, like our hidden champion examples, we are serious about managing innovation then we should try and ask ourselves questions aimed at improving the way the process operates. For example:

- Do we search as well as we could?
- How well do we manage the selection and resource acquisition process?
- How well do we implement?
- Do we capture value? Improve our technical and market knowledge for next time? Generate and protect the gains so they are sustainable?

- Do we learn from experience? How do we capture this learning and feed it back into the next time?

Of course the reality of the journey is never as simple as this map. It's a messy process of stops and starts, dead ends and blocked roads, diversions and hold-ups. And on many occasions we may need to abandon the journey, dust ourselves off and start again in a different direction. But a wide range of studies suggest that there is an underlying journey (= process) and there are consistent lessons about the kinds of thing we can do to improve the ways we make it (Van de Ven, 1999).

Innovation doesn't happen by accident within our example companies. They have developed 'routines' – patterns of behaviour which become embedded in core processes, structures and policies – they become 'the way we do things around here' (Nelson and Winter, 1982). It is no coincidence that the websites of all of these companies make reference at the top level to the importance of their 'innovation culture' – not as a throwaway line but as something which shapes and guides behaviour within those organizations.

3.4. **Innovation strategy**

Having the capability to innovate and the deep knowledge base on which to draw is important, but another key element is making sure innovation is strategically directed. Successful hidden champions recognise that there is a wide field of opportunity and place their strategic bets accordingly. They build a portfolio covering and exploring all the innovation space.

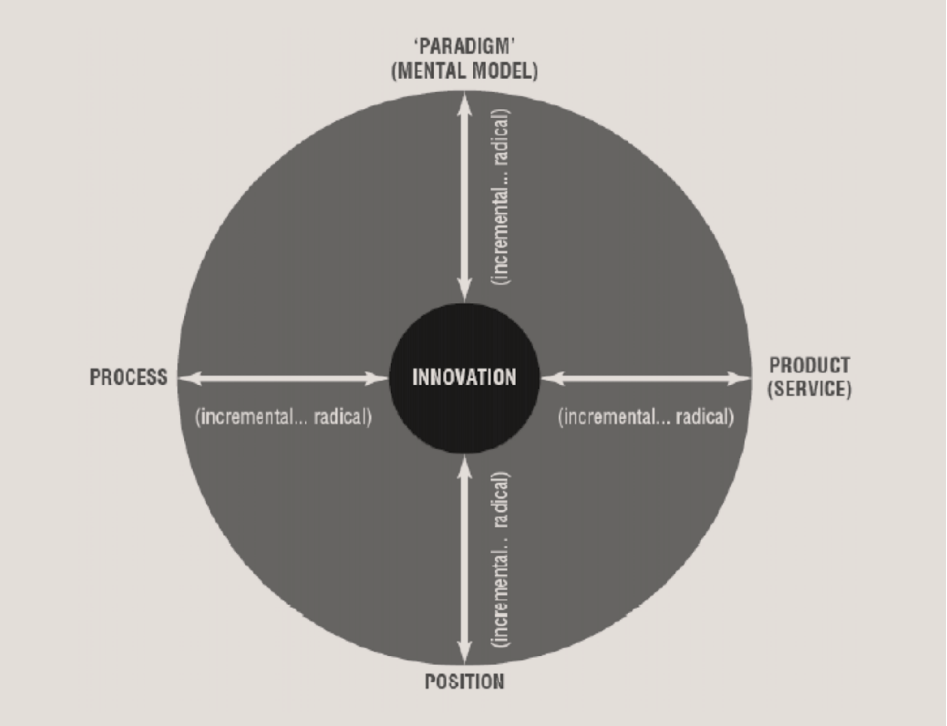
For any organization there is the need to balance exploitation and exploration – doing what they already do better and occasionally doing something completely different. These translate into incremental and radical innovation activities; striking a balance and recognising the different ways in which they can be realised is a key innovation management skill. Innovation inevitably involves risk and a balanced portfolio would seek to have a range of projects distributed along this spectrum with the majority around 'do better' improvement agenda but with others pushing the frontiers of radical innovation.

But there is a second challenge in innovation strategy – making sure that the full space available for innovation is explored. It is helpful to think of this space as being mapped by an 'innovation compass' – essentially innovation can take place in a number of directions. (see Figure 2).

This model suggests that we can make changes – innovate – in many directions but principally we can think about:

- The product or service – what we offer the world.
- The process – the way we create and deliver that offering.

Figure 2. **EXPLORING INNOVATION SPACE – THE INNOVATION COMPASS**



Source: Francis and Bessant, 2005.

- The position – who we offer it to and the story we tell about it.
- The 'business model' – the way we think about what our organization does and who we do it for.

Most organizations begin life as start-ups with a core product or service offering. But over time innovation needs to move along other directions as well. For example Christian Hansen's pioneering science in the laboratory would have remained there without the underlying process innovation able to enable reproduce ability, scale, transportation, etc. Wilo's early work as a specialist foundry was customer-led application of process technology and skill; only later did their core product work around pumps come into the equation.

Marshalls demonstrates what happens when companies develop capabilities along both product and process innovation directions – they can configure and create new products through the interplay of these complementary capabilities. In similar fashion Dyson learned a great deal around process innovation (especially in design for manufacture and modular/platform thinking) which has helped them expand their product range so widely.

But whilst product/process innovation remains a key axis along which considerable activity can take place a key characteristic of hidden champions is their exploration of innovation space enabled by position innovation. By entering new markets, especially internationalising at an early stage, they confront key challenges which require very different configurations to solve. Drawing on their product and process innovation skills but also learning with the new marketplaces stretches and extends their capacity as innovators, expanding their markets in the process.

Closely linked to this is the evidence that hidden champions (like our examples) have close links with customers, often partnering with them in developing (co-creating) novel solutions. Relationships matter because they enable a flow of key knowledge between the players – for example, Christian Hansen's ability to configure bacterial strains for different environments owes much to its close links with cheese makers around the world, established and worked on over decades. Marshall's business has been built on close partnerships with customers, learning from and with them in what is essentially joint problem-solving activity.

Of growing significance in todays' environment is the ability to also innovate the underlying core business model which drives the business. This is hard to do but only by being able to step back and redefine how the company transforms its knowledge base to create value will it continue to succeed. We can see this willingness to reframe in our examples; each of them has had episodes in their history where they have redefined themselves, letting go of some of their original core and identifying new ways in which the business will create value in the future. For example, Marshall's moved in the post-war years from a contractor model, relying on its close links with key customers to one in which they increasingly became a design and knowledge partner. Rethinking that business model anticipated in many ways the move towards 'servitization; which characterises and increasing number of project-based manufacturing organizations today.

For De La Rue the shift was from working with advanced and specialised printing technologies to reframing the business as one in which security was the defining feature. It had the effect of moving them out of certain markets but also towards close relationships of trust with key agencies for whom high security documentation is of central importance. As their business moves increasingly into the digital world so this business model is having to adapt again.

Christian Hansen's business moved, like Marshalls, from supplying products to increasingly delivering a science-based service, customising and configuring to suit highly specific needs. Dyson has made a significant move upstream form supplier of domestic appliances to being seen as a design-led technology leader, moving from domestic applications to possible new roles in the world of transportation and power. And Hella is now in the position of adapting and extending its business model as it moves from a role as an automotive component supplier to a high technology

provider of intelligent electronics with potentially wider application possibilities in the emerging markets created by the 'Internet of Things'.

Their skill lies less in the particular decisions about strategic investments for innovation than in their ability to explore and colonise the innovation space in a broadly-based fashion. In doing so they create room for them to manoeuvre in an increasingly turbulent world.

3.5. **Continuity through change – dynamic capability**

Thanks to the pioneering work of scientists like Francis Crick, James Watson, and Rosalind Franklin we now have a deep understanding of the way in which the human organism passes on its past. Strands of DNA make up genes and these provide the carriers for what shapes an individual in terms of their make-up and behaviour – blue eyes, long legs, stronger heart, etc. Genes encode the programs for the future and being able to carry forward key characteristics enables us to survive in hostile and complex environments.

Understanding the building blocks through which genetics operates moved us to a new world where we can now engage in genetic engineering – removing troublesome genes or switching them off, splicing in new ones with additional capabilities, improving the health of existing ones.

Organizations also have a kind of DNA – and we often use this metaphor. But DNA in an organization involves a set of 'programs' embedded in its structure and processes – the way we do things around here. Much organizational theory talks about 'routines' – and these are effectively the expressions of genetic coding around how we tackle the day-to-day tasks of the organization. So in the world of innovation there are routines for how we search, how we choose projects, how we manage them, and so on.

The big difference between an organizational model and the wider world of evolutionary genetics is that we don't have to wait for random mutations to modify the genes. Within organizations we can carry out 'genetic engineering' to revise and reshape the genes in more active ways. That's the role of leadership, trying to create organizations which are well adapted for their current and future environments.

So over time if an organization is to survive and continue to innovate it needs to find some way of passing on its genes – continuity. And it also needs to have the capacity to review, revise and modify its genetic make-up for innovation – changing some and splicing in others, adding to the overall capability.

'Dynamic capability' of this kind is the key to innovation longevity (Teece, Pisano and Shuen, 1997) (Zollo and Winter, 2002). Being able to step back and review routines, asking key questions like:

- More of – of the routines we have in place which ones do we need to strengthen, build on?
- Less of – of our routines which ones should we change, or perhaps eliminate, since they are no longer appropriate?
- Different – which new tricks do we need to learn, which new behaviour patterns do we need to rehearse and embed?

Once again we can see this ability – to review and to reconfigure innovation routines – at the heart of our hidden champions and their approach. There's a willingness to challenge and revise approaches which have worked in the past, an awareness of the need to reset goals and adapt structures. But at the same time there is continuity – the persistence of core values which hold the organization together and which pass on to future generations the essence of the company approach to innovation. Balancing these two elements is at the heart of effective innovation leadership.

Take the example of Hella. A family-owned business for much of its life it has seen innovation move from a fairly ad hoc informal process to one which is at the heart of their success. Their history has been one of reviewing and adapting innovation capability, adding new elements, adapting others, letting others go. Their early commitment to R&D led to increasing formalisation, to recruitment of specialist staff and establishment of departments within which they could operate. That commitment remains today with around 10% of turnover being ploughed back into knowledge creation – but the structures to enable the work of those scientists and engineers have changed. At key points in their history we can see this kind of strategic reflection at work.

For example in the 1980s there was an explosion of product development, new ideas flaring up everywhere, some customer-led, some opportunistic deployment of new technologies. What was clear was an increasing lack of focus or control – one review suggested that of around 4000 projects a small number – less than a hundred) made up the main contribution to sales, accounting for around 80%. A further 300 delivered around 15% of sales and the remainder – 3000 plus – delivered less than 5% of sales whilst consuming over 30% of the R&D investment. Rethinking product development and putting in place disciplines and structures for portfolio management was a key intervention, a major reconfiguration of the innovation model.

Or the move towards networking – the foundations of the open innovation approach discussed earlier. Once again there was a key reflection point and a recognition that the model which had brought the company through much of its early life needed to give way to a newer model based far more on building knowledge networks with others.

More recent activity has focussed on how to deal with disruptive innovation. In an industry which has suddenly become much more fluid and uncertain there is great risk but also opportunity for entrepreneurs. For an established player like Hel-

la this implies the need to build a very different kind of innovation capability, one geared much less to the 'do what we already do but better' agenda and instead focusing on doing something completely different. At the limit this may require letting go of core parts of the company to replace them with new businesses. Building such a capacity for corporate entrepreneurship has involved some fundamental rethinking of the innovation model, letting go some old approaches and adding new capabilities with new operating tools and processes more linked to entrepreneurial start-up culture.

We can see the same reflection and reconfiguring in our other cases – for example Dyson was heavily criticised during its earlier years for shifting its manufacturing operations to the Far East. But what was actually happening was a fundamental shift towards becoming a design-driven enterprise and the move was also accompanied by a significant expansion of UK based work around R&D and design. As we have seen this trend has accelerated so that now a substantial part of the company is involved in this kind of work; essentially the underlying innovation model has shifted and adapted.

4. CONCLUSIONS

Hidden champions are an increasingly recognised force in the economy and they give the lie to the idea that success and survival are dependent on scale. Their strength comes from many elements, in particular a strong external and international orientation matched to close customer links and a commitment to being tightly focused on a particular field. But at the heart of their success is a model which sees sustained innovation as key to survival and growth.

This long trail of innovation is one we see in all of the examples and many others – but it is not a lucky accident. It draws on key competencies and capabilities both embedded in the organization and in its wider ecosystem. And above all it depends on having the dynamic capability to review and reset these, and in doing so to maintain a position which is both agile and resilient in a turbulent environment.

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