



Novo Nordisk

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Managing Innovation

Learning to look – stakeholder innovation in Novo Nordisk

By anyone's yardstick Novo Nordisk is a successful innovator. A Danish company with roots going back 80 years it has built a successful global business out of the treatment of diabetes. With its beginnings in the early development of the pioneering work of Banting and Best on insulin production, the company has a history of innovation in both product and delivery systems.

It remains one of the world leaders in diabetes care and has been responsible for a number of key innovations including the Novopen – a delivery system which replaced the syringe with a convenient – pen-shaped device which delivers a measured dose and contains enough insulin for a sustained period. In addition, Novo Nordisk has a leading position within areas such as haemostasis management, growth hormone therapy and hormone replacement therapy. It employs approximately 20,000 full-time employees in 69 countries, and markets its products in 179 countries.

Needless to say Novo Nordisk didn't get there by accident. Like any serious player in the global pharmaceutical business it recognises the need for high levels of R&D investment, currently running at around 17% of turnover. It has a healthy pipeline of new drugs and is actively searching for new lines along which can deploy its core knowledge base – for example, in haemostasis treatments. It has extensive links to centres of excellence in various technical fields internationally and sponsors research at a wide range of Danish and international centres. Global reach via a network of subsidiaries and affiliates provide a steady stream of feedback about local market variations and conditions which help strengthen their innovation lines. And it has a committed and active workforce for whom innovation is a core value – and who, according to a recent in-depth survey, believe strongly in the company's innovation commitment.

Yet Novo Nordisk – like everyone in their industry – faces big challenges in trying to maintain its strong innovation record. Simply doing even more of what worked in the past may not be enough, even if the investment costs of doing so are high. The costs of searching for new drugs have rocketed and the chances of successfully negotiating the regulatory minefield to bring a new drug to market are lower than they have ever been. Despite an increase in spending for the industry as a whole of around 6% per year and total expenditures estimated to be \$55bn by the end of 2005 the success rates on producing completely 'new to the world' drugs have been falling. Estimates vary but over the 12 year average time to bring a drug to market the cost can be around \$1.5bn and the hit rate is low; estimates suggest for 10,000 molecules with potential, around 250 make it to pre-clinical trials, 10 to full-scale trials and 1 may succeed.

At the same time the new kids on the block – in the emerging field of biotechnology and genetic engineering – have huge potential as they explore a still largely unmapped field. They could represent valuable partners or acquisition targets – but they also pose a threat if they go it alone and succeed. And all the while the spectre of history haunts big established firms like Novo Nordisk – existing

incumbents don't last forever and when discontinuous innovation shifts the rules of the game it's generally the new players who do well.

This isn't just an issue for the pharmaceutical industry. All businesses face the challenge of balancing innovation activities around 'exploitation' and 'exploration'. Innovation in the first case is about pursuing established and profitable trajectories and the game involves getting leverage on knowledge assets – conditions which favour established and mature players. But *exploration* is about new games and emerging rules, where entrepreneurial skills are the key asset and the ability to move quickly and adapt to an emerging set of opportunities are critical. These conditions tend to favour the new kids on the block, unencumbered by existing commitments or the mindsets which come with having pursued a particular (and previously successful) way of doing things.

There isn't a simple way of squaring this circle and we can see many different strategies for dealing with it being played out, from spinning off and setting up new businesses as entrepreneurial satellites of established players, through various forms of corporate entrepreneurship and venturing, to attempts to internalise such activities – intrapreneurship. But they are all ways of trying to deal with the challenge of developing new capabilities for complex environments. And central to these capabilities are those which determine how an organization *searches* for innovation possibilities.

Search behaviour and innovation

Any organization can get lucky once – stumbling across a new product or process, coming up with a new business model, opening up a hitherto untapped market. The real secret behind successful innovators is their ability to repeat the trick. And to do this firms need to indulge in search behaviour – seeking out new possibilities which combine their knowledge about markets and technologies in new ways. There's plenty of space to cover – innovation can arise in new offerings (product or service or combinations), new processes, new positions (within marketplaces, geographical regions, supply and value chains) and even in reframing the underlying mental models about what the business is and how the firm might operate.

Most of the time search is targeted in promising areas – developing existing technological trajectories, deepening understanding of markets, segments and niches, working within an established context of politics, regulation, public opinion, etc. In biological terms the firm is trying to adapt and survive in its environment and does so by introducing a regular stream of variations, drawing from a well-defined 'selection environment'.

But from time to time these 'equilibrium' conditions are punctuated by some kind of radical shift in the environment which requires a very different kind of behaviour. Triggers could be the emergence of a new technology or market, the arrival of a new player with a radically different approach, shifts in the regulatory framework, unexpected political events or the emergence of a radical new business model which reframes the game. The resulting challenge is a need to abandon 'more of the same' adaptation and carry through experiments towards a new alternative. Viewed from a distance the pattern is still one of variation, selection and retention of attributes which will help the firm to survive – the trouble is that close up this smooth pattern is anything but a smooth transition!

Complexity theory makes a distinction between *equilibrium* conditions, where the pattern of variation around a particular theme dominates, and *chaotic* conditions, where there is random variation and all bets are off. But importantly there is a point at ‘the edge of chaos’ where a new equilibrium point can emerge. In physical terms the first situation is typical of a solid, in which molecules remain in controlled and ordered motion around a clear framework. Chaos is equivalent to the gaseous state where there is random movement, collisions and unpredictable trajectories. Somewhere in between is the liquid state where there is rapid and unpredictable motion but where there is also some degree of boundedness.

Systems in equilibrium lack the internal dynamics to respond to its environment and will slowly (or quickly) die. A system in chaos ceases to function as a system. The most productive state to be in is at the edge of chaos where there is maximum variety and creativity, leading to new possibilities.

We can see this pattern in the experience of innovation across industries over time. Typically we have extended periods of equilibrium where innovations are essentially variations on an established theme, doing what we do but better. And we know that discontinuities – for example the emergence of a new technology – can trip this into unstable conditions – the so-called fluid or ferment stage. What then happens is the gradual emergence of a new dominant design – essentially a new combination of needs and means – which gives some order to the chaotic ferment and help establish a new equilibrium state. The process is one of moving to the edge of chaos and then back to a more steady state.

That firms need to guard against becoming too conservative and restricted their innovations to improvements of the ‘do what we do better’ kind is an obvious lesson for management. But if they are to move away from the familiarity of search approaches under equilibrium conditions then they face big challenges. Complexity theory talks about gradual emergence of new configurations of elements - the new dominant design - not as the result of planned and targeted search but rather one of *co-evolution* with a changing environment.

The problem with the strategic innovation environment facing firms like Novo Nordisk in the current pharmaceutical world is that there is a growth in *complexity* – that is, they face challenges emerging not just from an increase in the number of elements they have to worry about but also the unpredictability that comes from their *interaction*. Not only do they need eyes in the back of their head but new challenges emerge apparently out of nowhere as new combinations of elements evolve into potent threats.

How to search for the unexpected

Under these conditions organising and managing innovation becomes much more than ‘doing what we do but better’ – a strategy suited to the (relatively) straightforward environment where the rules of the game are clear and the other players play by them. Instead we need to look for additional and different capabilities suited to picking up quickly on emergent new phenomena and on ‘co-evolving’ with them.

Firms can choose to search actively for such triggers – and thus buy themselves time and at least an entrance ticket to the emerging new game – or they can try and respond quickly once the new patterns begin to emerge. Either way the challenge is one which puts pressure on the established ways in which the firm searches and the directions in which it does so. This isn't easy – it poses what we might term 'the lamp-post challenge'. Rather like the drunk who has lost his keys on the way home and is desperately searching for his keys under the nearest lamp-post 'because there is more light there', firms have a natural tendency to search in spaces which they already know and understand. But we know that the weak early warning signals of the emergence of totally new possibilities – radically different technologies, new markets with radically different needs, changing public opinion or political context – won't happen under our particular lamp-post. Instead they are out there in the darkness – so we have to find new ways of searching in space we aren't familiar with. To make it even worse we have no real idea what we are looking for – it will only become clear as it emerges and the best we can hope for is to spot it early in its emergence and develop our response alongside it.

The issue is not so much one of describing the phenomenon as one of what a firm like Novo Nordisk might do about it. How do you organise to search for something which hasn't emerged yet?

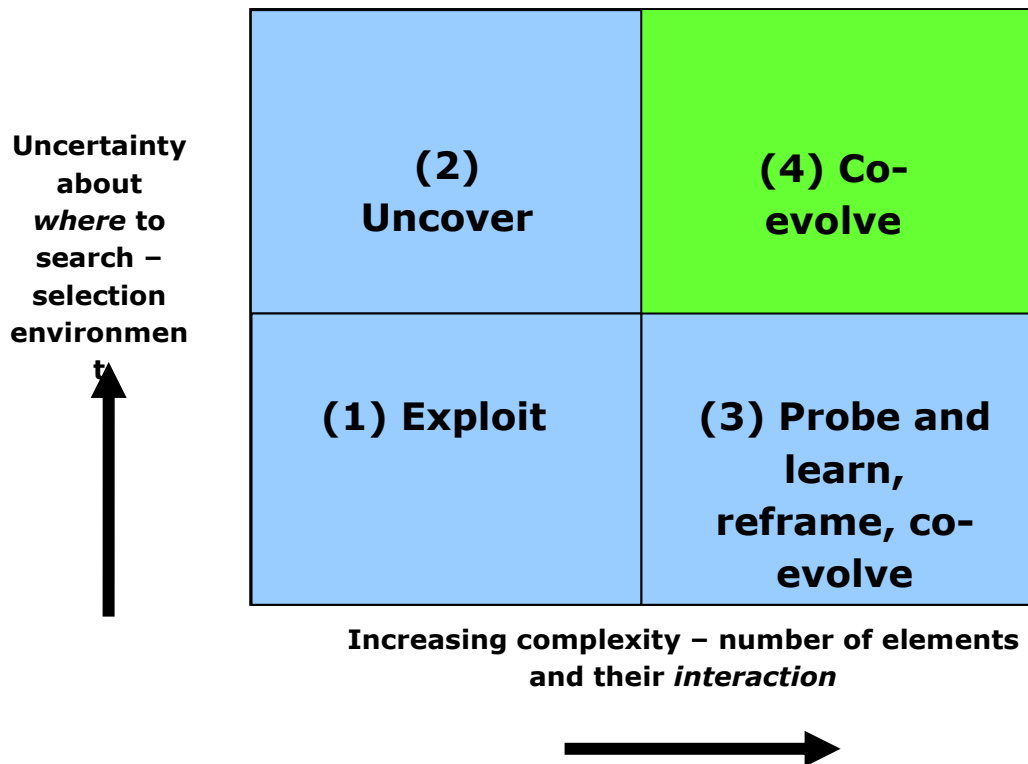
Figure 1 highlights the problem. The innovation challenge in zone 1 is relatively straightforward – how to systematically search a space in which we understand where and how to search. A well-defined 'selection environment' is one where we know the key technological lines of enquiry, we understand the markets and the competitive dynamics, the regulatory and political framework and constraints, etc. It is a space into which we can deploy controlled variations on what we currently do. *Exploitation* here has a relatively high chance of success.

Zone 2 poses more problems because we have to search beyond our current context – but in a (relatively) predictable environment we have a good idea of the directions in which to place our research bets – for example, along particular technological pathways or into new but promising market opportunities. *Exploration* is certainly involved here but it is bounded by the envelope of the rules of the overall business game that we (and our competitors) understand.

Where things get tricky is on the right hand side, where increasing complexity means that things are unpredictable and emergence will dominate. In cell 3 the challenge is one of searching in territory where there is some familiarity – it's the same set of markets and technologies, competitors, regulators and other players. But it is unpredictable – the sheer number of elements and the ways in which they can interact means that the focus of innovation here may shift and require the ability to reframe and unlearn old 'rules' of the game. For example, the airline business remains on of transportation of people and freight using aircraft and airports. But the advent of the low cost revolution has radically changed the rules of the game – a new business model has emerged. (NB this isn't just lower prices but a complete revamp of the system according to new rules). Similarly the music business is changing and did the utilities game, shifting from service to commodity trading. It's hard for existing players to search here because they are likely to suffer from various forms of blindness – cognitive dissonance, inattentional blindness, etc. examples

In cell 4 there is unpredictability and no clear place to start – its open space. Here the challenge is to ask whether any of the organizations prior assets might play in the emerging game – but it requires

being able to search in very unexpected places and pick up and learn about radically different and unimaginable possibilities.



Guidelines for searching

Complexity theory gives us some clues about how we might design such search approaches. A key feature of complex systems is emergence – out of the ‘edge of chaos’ a process of feedback and convergence creates a new stability around ‘attractors’ – an emerging focal point. (This is equivalent to our dominant design). So to get best fit with what is emerging organisations need to co-evolve with their environments. Rather than simply trying to adapt in a passive sense there is active learning about and attempts to influence the emerging pattern. It can happen in a random way – as biological evolution is assumed to, where a mutation could add a new sensitivity or could inhibit one – but it can also happen by design (people/groups can decide how many other people or groups to interact with, and/or how many concurrent interests to pursue).

We can translate these theoretical insights into three practical guidelines for dealing with emergence:

- *Be in the game* - not easy to do since it isn't clear where the new game will happen!
- *Be in there early* – again not easy to do because the game emerges rather than happens at a discrete time. But getting in early allows for extended learning time

- *Be in a position to shape the game* – not easy because the levers may not be in the organization’s hand. But it can take part in co-evolution as one of the players in an emerging system, able to influence form the inside.

This is easy to specify in theoretical terms – how might we translate this into practice?

Developing search capabilities

For a successful player like Novo Nordisk the problems of how to search posed by zones 1 and 2 are not insurmountable. Zone 1 represents line extensions, variations on existing portfolio of drugs and delivery devices, entry into new geographical markets, etc. The search behaviour here uses well-defined routines of market and technological research and development. Zone 2 represents a targeted and strategic (re) search approach, investing the 17% of turnover in directions which – whilst unknown and therefore risky- have close links with what the company knows about and how to use. In a pharmaceutical business a lot of this is in the scientific domain but there are also strategic investments in long-term market understanding, regulation, etc.

But how does a firm like Novo Nordisk begin to tackle zones 3 and 4? They have good road maps for zone 1 and good experienced surveyors able to extend that map-making into zone 2. But how do they start to search in the fog of uncertainty which characterises the right hand side of the diagram? No organization has enough resources to explore all the potential space so they have to develop strategies for searching. But these strategies need to deal with the problem of groping a way forward in the fog – so they are less about targeted search than about feeling a way forward, using a mixture of judicious experimentation and a lot of fast adaptive feedback to emerging situations. It’s essentially an approach based on ‘probe and learn’ – and critically it needs to engage with a wide variety of stakeholders. As table 1 shows this represents the next stage in a journey of increasing user involvement in the front end of innovation.

Table 1: The evolution of ‘stakeholder innovation’

Model	Characteristics	Problems	Tools to help enable and support
User passive – technology push	Simple linear model, knowledge creates innovations which diffuse naturally to passive users	Users may not want them! The problem of the better mousetrap which no-one wants Misses key demand signals which could shape the innovation	

User consulted	Users views taken into account and fed into the development process	May only deal with clearly articulated user needs- what they say they want – and this pattern may change over time	Voice of customer techniques, focus groups, market surveys etc.
Early and active user involvement	User input helps to shape and modify design and retains an ongoing involvement – iterative and interactive process	Depends on finding ‘lead users’ who help define the envelope within which other users’ needs can be met.	Lead user methods Customer-active paradigm and toolkits
Users as innovators – part of the system in which innovation co-evolves	Open-ended and co-evolution – facilitates emergence	How to find such evolving networks How to position within such networks How to appropriate benefits out of a co-operative activity How to prevent leakage	Stakeholder innovation Open source activity and tools

Stakeholder innovation within Novo Nordisk

Let’s return to the case of Novo Nordisk and how they are deploying ‘stakeholder innovation’ (SI) as a complementary approach within their innovation portfolio. Like any large and globally active business Novo Nordisk has had to take its corporate responsibilities seriously and it has been at the forefront of developing and implementing good practice in this area. It was one of the first companies to introduce the concept of the Triple Bottom Line in its performance measurement, recognising that it needed to take into account wider social and societal concerns and to be clear about its values. But such measures are not seen simply as ways of securing and retaining a licence to operate in an increasingly critical environment. They have value in securing employee motivation and commitment inside the organization and they help significantly in brand and reputation-building outside. Today the company is consistently rated highly for its commitment to CSR, not least because this is a board-level strategic responsibility with the rhetoric backed by resources committed to projects to sustain and enhance good practice.

But in recent years there has been a recognition within the company that this investment – necessary to secure a continuing licence to operate and helpful in brand-building – is also a powerful *innovation* resource. It can be seen as a different – but nonetheless powerful – commitment to research and development, complementing the mainstream and with particular relevance to zones 3 and 4 of our map. How does the organization pick up on emergent phenomena? How do they get in the game early? And if they do manage that, how might they be in there in a position to help shape the emergent new game? Essentially they need to be involved closely with a wide range of stakeholders, learning from and with them and moving to long-term co-evolution of new ways forward. Investing in building up stakeholder relations represents a powerful way of doing this.

Let's look at 3 examples of this SI approach.

(i) The DAWN programme

A good example of this approach is the DAWN programme – a continuing survey of Diabetes Attitudes, Wishes and Needs which was initiated in 2001. The objective of DAWN was to explore attitudes, wishes and needs of both diabetes sufferers and also healthcare professionals to identify critical gaps in the overall care offering.

Its findings showed in quantitative fashion how people with diabetes suffered from different types of emotional distress and poor psychological wellbeing, and that such factors were a major contributing factor to impaired diabetes health outcomes. Insights from the programme opened up new areas for innovation across the system. For example, a key focus was on the ways in which healthcare professionals presented therapeutic options involving a combination of insulin, oral and lifestyle elements – and on developing new approaches to this.

In the process DAWN opened up multiple opportunities for Novo Nordisk to engage with a range of stakeholders and build the fabric for longer-term learning and co-operation with patients, healthcare professionals, governments, scientists and others, all of whom have complementary knowledge sets which could form the basis for innovative combinations. Extensive internal and external discussion of the findings culminated in the first DAWN Summit in 2003 which brought together representatives from 31 countries and key agencies in the healthcare system such as WHO; it was widely publicised in specialist and non-specialist journals and via the International Diabetes Federation (IDF). The result has been to establish a common framework within which an understanding of the issues is combined with relationships with key players who could become involved in the design and delivery of relevant innovations.

DAWN's value is as an independent, evidence-based platform on which extended discussion and exploration can take place around the future of diabetes management as a holistic system – not simply the treatment via insulin or other specific therapies. Much of the focus is on understanding how complications arise – for example circulatory disorders which can lead to amputations and other negative effects – because of improper use of treatments. Better understanding of the wider psycho-social context coupled with educational and other initiatives can significantly impact on this aspect of diabetes care – in the process saving on scarce resources available through prevention of costly

downstream effects of poor disease management. It offers the opportunity for players – including Novo Nordisk – to learn about not just diabetes but more general management of chronic disease. As Søren Skovlund, Senior adviser, Corporate stakeholder relations put it

'... The key elementis the use of the DAWN study as a vehicle to get all the different people round the same table to bring everyone (patients, health professionals, politicians, even payers) together to find new ways to work more effectively together on the same task as they do now ...'

'You can't avoid getting some innovation because you're bringing together different baskets of knowledge in the room!'

DAWN has become a powerful process around which co-evolution is taking place. It has helped mobilise a global community of practice across which there is significant sharing of learning and interactive changing of perspectives.

Why do it? Whilst it represents a good investment in stakeholder relations, there is also a growing sense that the healthcare game around chronic disease management is shifting. For example the WHO estimate that diabetes is a bigger killer than AIDS with around 3.2 million deaths attributable to the disease – and its complications – every year. In developing countries the figures are particularly alarming where one in ten deaths of adults aged 35 to 64 are due to diabetes and in some countries the figure is as high as one in five. Whilst infectious diseases have been in the limelight chronic diseases like diabetes represent a time bomb around which major activity is likely to happen in the near future. Healthcare systems are increasingly focusing their efforts on reducing the socio-economic burden of disease, as well as the healthcare costs, through reorganisation of the care process and structure but the product-focused pharmaceutical industry is falling behind.

Short-term benefits from DAWN include a positive brand impact and a positioning as a reputable and often preferred partner within healthcare systems. But more important it is a learning investment for Novo Nordisk about the whole *system* of diabetes care, not just the drug side. It opens up possibilities around emergent models – for example, there might be a role for a company like Novo Nordisk as an integrated service solutions provider around chronic healthcare management.

'...research in DAWN and discussion of the results with all the people involved has given us very detailed knowledge about how to go about investigating and overcoming the real-life barriers to timely use of insulin therapy in people with type 2 diabetes – and that's of course, very relevant to improving careone of the main problems in type 2 diabetes is that people delay getting the treatment they need because of convenience issues, lack of knowledge, etc....that essentially means that for every day they delay treatment they increase their risk of getting severe complications such as amputation, blindness, neuropathy and hospitalisation ...'

(ii) National Diabetes Programmes

The knowledge from Dawn has become an integral part of the Novo Nordisk national diabetes programme (NDP), a collaborative approach to improving international diabetes care. The NDP facilitates the development of effective national diabetes programmes through sharing best practices among more than 40 countries. Knowledge obtained via DAWN provides one of several inputs to a set of activities operated by Novo Nordisk under the banner of National Diabetes Programmes (NDPs). These non-profit ventures represent at one level a good example of a socially responsible healthcare company contributing to the understanding and development of health strategies and systems. At the same time these programmes also bring the company into close and continuing proximity with the key and diverse players in that field. Beyond the PR value of showing the company's commitment to improving diabetes care and not simply selling insulin, it creates the presence/positioning which we described above.

The NDPs initiative began in 2001 when the company set about building a network of relationships in key geographical areas helping devise and configure relevant holistic care programmes. This was not simply a ploy to sell more insulin – in fact the company sells its drugs in these markets at an 80% discount to US and European prices. Instead it offers a range of inputs supporting education of health care professionals, establishing clinics for foot care of diabetic ulcers, etc. The approach is summed up by the CEO, Lars Rebien Sorensen who argues that *'only by offering and advocating the right solutions for diabetes care will we be seen as a responsible company. If we just say 'drugs, drugs, drugs', they will say 'give us a break!'*"¹ This is clearly good corporate stakeholder relations practice – but the potential learning about new approaches to care, especially under resource-constrained conditions, may well represent a significant 'hidden R&D' investment.

Typically the process involves identifying a partner, identifying needs with them, seeing what can and can't be changed or influenced, agreeing priorities and developing a National Plan – with Novo Nordisk providing resources to help with implementation. The NDPs are closely linked to another Novo-Nordisk initiative, the World Diabetes Foundation which was established in 2003 with an initial pledge of \$100m over a ten year period. It now operates in over 40 countries trying to raise awareness and improve care especially in areas – such as India and China – where it is seriously under-diagnosed. NDP activity is separate from WDF but tries to leverage and complement rather than duplicate.

The core underlying principle is one of developing and testing generic prototype Plans which can then be adapted and configured – deep customisation – for a variety of other countries. For example, Tanzania was used as an early pilot. It was very hard at first to convince authorities to take chronic diseases like diabetes into account since they had no budget for them and were already fighting hard with infectious diseases. With little likelihood of new investment Novo Nordisk began to work with the local diabetes associations to establish some demonstration projects. It set up clinics in hospitals and villages, trained staff and provided relevant equipment and materials. This gave visibility to the

¹ The Economist 'Heal thyself', p15 of Pharmaceutical Industry supplement, June 18th, 2005.

possibilities in a chronic disease management approach – for example before the programme someone with diabetes might have had to travel 200km to the major hospital in Dar-es-Salaam where now they can be dealt with at local level. The value to the national health system is significant in terms of savings on the costs of treating complications such as blindness and amputations which result from poor and delayed treatment. As a result the Ministry of Health is able to deal with diabetes management without the need for new investment in hospital capacity or recruitment of new doctors and nurses. Novo Nordisk have helped with education and the pilot but essentially the national health authority is now better able to cope with a ‘new’ problem of diabetes and to develop a national strategy to deal with this. Novo Nordisk is essentially a facilitator here – but in the process is very much centrally involved in an emerging and shifting health care *system*.

Once again this model opens up significant potential for cross-country learning. Much of the learning is about the context of national healthcare systems and how to work within them to bring about significant change – essentially positioning the company well for co-evolution. One of the significant shifts – which has had implications within Novo Nordisk as well – is the recognition of the problem of under-diagnosis. In general around 80% of diabetes sufferers in developing countries remain undiagnosed, with the resulting attention of the healthcare system (and the pharmaceutical companies working with them) going on the 20% who are identified and treating them. The move is now towards how to find the undiagnosed and get to them, how to treat and manage their diabetes in such a way that they don’t get complications which is where the major costs arise. – essentially a shift from treatment to primary care and prevention. This has implications not only for expanding the potential market for insulin treatment but also moving the company into much broader areas of healthcare management and delivery. As a manager commented, *It’s a paradigm shift for the company – difficulty of reframing diabetes as a public health issue – this challenges Novo Nordisk to get involved in very different things and approaches – not simply to be a product delivery company.*

This is not a short-term game but the potential for emergence of something very different is certainly there. For example, in 2005 the WHO identified diabetes as one of the priorities they should work on in Africa – partly because Novo Nordisk has worked for past 3 years providing data, funding studies, etc. At present there is no country in Africa where it is a public health priority -.but what about when it is recognised as such?

Positioning the company in rich and diverse networks also has the function of providing a good early warning system for changes which may affect its business. For example, there are possibilities that traditional medicine drawing on different experiences and cultures such as in India and China may lead to interesting therapeutic routes. The example of malaria is significant here, where the best-selling remedy is a variant on a traditional Chinese medicine. One of the NDB programme managers commented that it is likely that Novo Nordisk will pick up early signals about these because of its extensive involvement in the networks *‘...if you are with them on a regular basis, working on projects, discussing all kinds of things then if there is anything it will come up in discussion and you will know about it’*

(iii) Oxford Health Alliance

OHA is an independent venture with Novo Nordisk as a major founding member whose aim is to deal with chronic diseases differently and in a holistic way. It was set up 2003 and founding members included:

- 8 treasury and public health departments from the United States, China, Canada, South Africa, Brazil and the United Kingdom;
- 16 corporations from the pharmaceutical, health care, food and media industries;
- 16 world leading universities focusing on medicine and public health as well as economics, geography and development; and
- 12 leading non-governmental and inter-governmental organisations.

Its 'mission' sees it as a focus for emergence -

The Oxford Health Alliance enables experts and activists from different backgrounds to collaborate in order to raise awareness and change behaviours, policies and perspectives at every level of society. Alliance members from around the world include leading academics, activists and corporate executives, patients' rights advocates, doctors, nurses and others, all of whom share a sense of urgency about the worldwide epidemic of chronic disease. Our first goal is to raise awareness among influencers and educate critical decision-makers so that the pressing case for preventative measures can advance, and we can begin to combat chronic disease.

It reiterates themes emerging in DAWN and NDP activities that suggest the game is changing. As Lise Kingo, Executive Vice-President of Novo-Nordisk indicated at the launch of OHA, *'We are not heading for a paradigm shift; we're already in the middle of one in terms of how we treat chronic diseases'*

These thoughts are echoed by Lars Rebien Sorensen, CEO of the company who doesn't underestimate the mindset change moving into this territory represents: *'in moving from intervention to prevention – that's challenging the business model where the pharmaceuticals industry is deriving its revenues!We believe that we can focus on some major global health issue – mainly diabetes – and at the same time create business opportunities for our company'*

As far as Novo Nordisk is concerned it is part of a strategy of exploring very different games and this involves a very different kind of search activity – a sentiment echoed by Prof. Stig Pramming , Novo Nordisk's nominee as Director of OHA *'You need to be in the game, you can't win if you haven't bought a lottery ticket!'* He recognises the tension this sets up – lottery tickets are not the same thing as relatively safe but smaller bets – especially to a sales rep whose commission depends on the safe bet!

Novo Nordisk's involvement with OHA – which extends to funding it during its initial years at the level of around £1m per year – came out of work with future scenarios for the business which identified three key themes. These were the changing healthcare environment, biomarkers and telecare, and the company has been engaging in ventures like OHA to help 'buy tickets' to play in each of these

games. So it has a part of a major EU-funded programme on biomarkers and is active in Telecare research. OHA represents its commitment to exploring the changing healthcare environment.

Pramming sees OHA as a laboratory, a place where different kinds of exploration can happen with and amongst key stakeholders from diverse backgrounds. A key underlying theme is reframing from pharmaceuticals treatment to prevention – diet, exercise, and lifestyle. But this carries with it major challenges for the company and even an element of thinking the unthinkable – after all the pharma industry doesn't like wellness! It is a long-term project where the concept of emergence becomes central – innovation is going to be the product of a process of co-evolution. As Pramming puts it, *'we're out there looking for small pieces of innovation that we can knit together into a sweater or a scarf'*. A long term project – but doing nothing is not an option. As Mats Ovlisen of Novo Nordisk put it, *'unless we get out there, get our foot in the water – unless we dare to take some risks, we're never going to get anywhere!'*

Table 2 summarise the range of stakeholder innovation initiatives which NN is involved with.

Programme	Activities	Stakeholder benefits	Business benefits
National Diabetes Programmes	<p>A toolbox for enhancing engagement, education and support of local initiatives, e.g., affiliate involvement in national diabetes policy-making and initiatives to promote collaboration in the health sector (much needed in the area of chronic diseases).</p> <p>Extending focus to as-yet undiagnosed cases (may be as high as 80% of total diabetic population) and to prevention as well as management</p>	<p>Provides the case for why diabetes should be on the agenda of health decision-makers</p> <p>Facilitates development of holistic local diabetes leadership strategies</p>	<p>Illustrates Novo Nordisk's commitment to improving diabetes care</p> <p>Opens and enhances market presence</p> <p>Learning and co-evolution around systemic chronic disease management and early exploration of potential innovative products and services to support this</p>

	Separate programmes in developing and developed countries		
DAWN – Diabetes Attitudes Wishes and Needs	<p>A survey among 5,000 people with diabetes, healthcare professionals and some policy-makers/authorities covering 13 countries.</p> <p>Focuses on overcoming psychosocial barriers to effective self-management and good quality of life among people with diabetes. A youth survey is underway</p>	<p>A unique stakeholder dialogue tool – brings new knowledge to the table about how to improved understanding of life with diabetes</p> <p>Provides opportunities for developing new healthcare designs, new tools and services for patient care, evidence (psychosocial) and influencing national diabetes strategies</p>	<p>Opens and sediments dialogue with KOL’s in the markets</p> <p>Provides fact base for company recommendations to enhance compliance and wellbeing</p>
Oxford Health Alliance (oxha.org)	<p>A global alliance to confront the pandemic of diabetes and other chronic diseases that share risk factors. Founded by Novo Nordisk and the University of Oxford.</p>	<p>Facilitates engagement in the development of approaches to controlling risk factors for diabetes and related chronic conditions</p>	<p>Platform for influencing, communication/branding, partnerships, evidence-building and company internationalisation</p> <p>Provides a co-creation platform for understanding long-term strategic change and experimenting with early stage business concepts</p>

	Members from around the world include leading academics, activists and corporate executives, patients' rights advocates, doctors, nurses and others		
World Diabetes Foundation (worlddiabetesfoundation.org) and principalvoices.com	An independent trust dedicated to supporting prevention and treatment of diabetes in developing countries. Novo Nordisk donation of 83 million USD over 10 years. The company funds app. ¼ of the project portfolio (currently 62 million USD). WDF will have influenced the diabetes treatment of app. 74 million people by 2008	Provides grants to developing countries to finance diabetes projects that would otherwise be un- or under funded.	Illustrates Novo Nordisk's commitment to improving diabetes care in the poorest parts of the world Significant reputation effect. Main reason why Novo Nordisk CEO was selected as one of 9 'Principal Voices' by TIME/Fortune/CNN Enjoys massive (and highly emotional) support from employees, shareholders and other stakeholders
Health futures (www.novonordisk.com , sustainability report, 2003)	Scenarios for the future of diabetes and health, trend spotting, and prototyping of emerging health systems and/or business concepts	Facilitates dialogue and experimentation around new ways of organising healthcare and disease prevention and/or emergent	New knowledge about emergent changes in society and the health system Provides a low-cost co-creation platform for experimentation with new ways of organising healthcare and disease prevention and/or

		business concepts	emergent business concepts
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