Disruptive models 1.1

Tech investor John Morton reviews how a new wave of digital ventures are scaling up flexibly to challenge the status quo.

In the digital economy, growth is happening on a new model. To explore ideas, you no longer have to put together a project team, load up your costs and start employing people. Instead, you can join a co-working hub, bring in collaborators as you require and put your assumptions to the test.

Once you have a commercial model that works, you can scale up rapidly by operating flexibly in the cloud, opening up the potential to build a global venture with sales of £20 to £40 million within four to five years.

Not everyone is keeping pace. According to some reports, 40 per cent of the Fortune 100 companies are in danger of disappearing over the next 10 years in the face of these new types of competitors. No-one can know for sure. It all depends on who makes the right decisions in adopting models for realizing the potential in digital technologies.

So what form are these new ventures taking? And what lessons can any other businesses learn in replacing their analogue assumptions and adopting a digital mindset?

Pop-up models

For those looking to test an idea and start a business, hubs, such as grow@greenpark, located just off the M4 in Reading, are emerging as flexible and collaborative spaces for experimenting with the commercial implications of new technologies such as the Internet of Things and 3D printing.

Ideas can evolve fast. Sometimes you will take the lead; sometimes you will follow. For everyone, the principle is the same. By joining a community of those who are also exploring early-stage ideas, you can access expertise and facilities to test whether you are heading in the right direction.

You might be starting to assemble technologies around your idea. You might be in the supply chain looking to get yourself up to speed. You might be a corporate searching for new perspectives and insights. Or you might be an investor, like me, looking at the potential in the next wave of digital technology.

Challenger models

Britain's digital economy is already growing 30 per cent faster than the national average and challengers are emerging to institutions as well established as banks and higher education. Instead of running a national operation on the ground, for instance, millions of customers can be managed centrally by perhaps 20 people offering a specialized service for a particular segment of the market. So banks cannot afford to stand still. Similarly, some institutions in higher education are questioning whether they can continue to compete in their current format when so much of their core offering is available digitally.

The digital transformation of such industries is being driven by four underlying changes in:

- how information is being sensed;
- how predictions are being made about its use;
- how decisions are being made and how actions are being taken; and
- how lessons are being drawn to improve future decisions.

The upshot is that administrative tasks are being eliminated. According to some estimates, 900,000 jobs in retail could disappear. Instead, the focus will switch to managing the frontline experience of the customer.

Similarly, the attention of executives and professionals will switch away from everyday tasks to managing high-value exceptions. Those who continue to offer a traditional service are likely to find themselves under mounting pressure.

Future models

Significant levels of public resources are now being directed towards capturing the lead that Britain occupies in data science. In satellite technology, for instance, major leaps forward are being made in the data that can be extracted from observation of the earth from space.

The science park at Harwell outside Oxford, which already hosts 5,000 PhD students, is being doubled in size and designated as a centre for finding commercial applications for all the new science that a new generation of satellites is generating. As a bridge between the lab and the market, a catapult has been established to open up skills, facilities and funding to which enterprises would never otherwise have access. As a start-up you are free to use the catapult's data to test, iterate and accelerate any ideas, before selecting which commercial applications to pursue.

One data venture that I am backing at Harwell, Democrata, has already benefited from this co-working model. Over the last two years, the company has taken up the challenge of combining archaeological surveys to create a comprehensive source for constructors and insurers on major projects. Any unexpected finds can cause 12–18 months of delay at a cost of tens of millions of pounds.

Up to now, no-one had been able to bring together the five principal sources of data, some of which are held digitally and some on paper. By creating a risk-modelling technique and extending its use to new areas, such as maritime, the potential is being developed for a venture that will be making £20 to £30 million in sales in five years. The challenges in processing such huge volumes of data would not have been possible without our ability to use the high-performance computing centre at Harwell.

Follow-up

In learning how to pick up the potential in new technologies, companies in regions such as the Thames Valley, where I am based, can:

- participate in activities and events at a hub such as grow@greenpark, which take a look at emerging technologies and how they apply to different industries;
- sign up for a regional programme that the British Computer Society has run with the Institute of Directors to give business executives coaching from IT entrepreneurs and chief technology officers on what new technologies might mean in their business;
- follow efforts such as those being pursued by OSI to investigate the potential for encouraging dynamic change in the supply chain and how standards can adapt; and
- talk to the Satellite Applications Catapult about the potential for converting data into entrepreneurial models.

By co-working and collaborating, you can access significant pools of experience and expertise. You also put yourself in a position to gain the flexibility to develop the new models on which future growth depends.

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Leadership for performance

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Growth can be like a battlefield. Volatile, uncertain, complex and ambiguous. Ross Nichols reviews the difference that leadership makes.

Many UK small- and medium-sized enterprises (SMEs) are being held back by poor leadership and management according to research by Warwick Business School.[1] The research found that leadership and management skills matter because they are closely associated with SME performance. The Department for Business reports that poor leadership and management is undermining UK SME productivity, which has a significant impact on profits, sales, growth and survival[2]:

- £19 billion per year of lost working hours due to ineffective management.
- Forty-three per cent of UK managers rate their own line manager as ineffective and only one in five are qualified.
- Nearly three-quarters of organizations in England reported a deficit of management and leadership skills, which contributes to the UK's productivity gap with countries like the US, Germany and Japan.
- Incompetence or bad management by company directors causes 56 per cent of corporate failures.

Productivity is especially important as it has flat-lined since 2008 and the UK's 'productivity gap' with other G8 economies is now 6 per cent.[3] A previously underexplored factor affecting productivity is the growth ambitions of entrepreneurs. Where SMEs are led by 'growth inclined' owners, they are more open to innovation and exporting, which drive productivity growth. UK firms are ranked 24th out of 34 European countries for innovation and only 18 per cent of UK SMEs are exporters. It is estimated that an additional £1.15 billion could be generated for the UK economy in the first year alone if more SMEs became regular exporters.[4]

A business's value lies increasingly in its relationships, which themselves lie with its people. Financial statements may represent only 60 per cent of a company's real value[5]: value is more in the intangibles of R&D, customer satisfaction, employee satisfaction, all of which are hard to measure. To maximize value, businesses therefore need to motivate and inspire their people. The 'war for talent' continues so it is important that businesses are able to attract, retain and develop the talent they need.

One of the big hurdles for a growing business is making the transition from small to medium sized. The key to getting over this hurdle is to invest in new skills including good leadership and management. Leaders and managers need to adapt to the changing business environment:

- Generational changes in customers and employees: Baby Boomers, Generation X, Millennials.
- Equality and diversity in labour markets: more women and minority ethnic groups in the workplace.
- Globalization and the pace of technological change are increasing the potential for new competitors.

Business operates in a volatile, uncertain, complex and ambiguous (VUCA) world and many businesses fail: only 35 per cent of businesses that don't use external support such as mentors survive for five years or more.[6] This VUCA world is not unlike the conditions of change, conflict, chaos and uncertainty found on a battlefield so what can we learn about the nature of leadership from the military? Sun Tzu in *The Art of War*, tell us that success on the battlefield is determined by leadership skill alone.[7] Bringing this up to date, Lieutenant Colonel Stewart Hill, a former British Army officer wounded in Afghanistan,[8] shared his leadership lessons:

> To lead successfully... you need to make people believe you, to make them feel that they matter, to make them feel valued. In a world full of process and deadlines we tend to forget about people. In war this cost lives. In the workplace this costs engagement and performance. To lead you need to be trusted, show compassion and have courage.

Good leadership and management is not simply about the economy: business can also help to solve social problems[9] and can take a longer-term view that places a higher value on the environment than on short-term profits.[10] This holistic view sees business as being about people and planet as well as profit – the 'triple bottom line'.

Women in business leadership

One area where many companies are failing is to make the most of the female leadership potential within their ranks. Right Management has recently made 20 recommendations for developing female leaders based on investigating the success of female-owned companies, and why women struggle to make it to the top in established businesses.[11]

To address this anomaly, the '30 per cent Club' launched a cross-company mentoring scheme in 2015[12] to improve the rate at which women progress through the pipeline to the C-suite.

Wealth creators and personality

Another aspect of business leadership is the link between personality types and how wealth is created. A study of wealth dynamics[13] found that successful wealth creators had one of eight 'wealth profiles': Creator (creating a better product: James Dyson); Star (creating a unique brand: Oprah Winfrey); Supporter (leading the team: Jack Welch); Deal Maker (bringing people together: Rupert Murdoch); Trader (buying low, selling high: George Soros); Accumulator (collecting appreciating assets: Warren Buffet); Lord (controlling cash generating assets: Sergey Brin); and Mechanic (creating a better system: Michael Dell). The success of these wealth creators was due to sticking to their natural wealth profile and delegating everything else – when they failed to delegate those aspects of leadership and management that they were poor at, their businesses failed.

Benefits of good leadership and management

Good leadership and management will address many of the negative consequences of poor leadership and management noted at the start of this chapter. The Department for Business is unequivocal on the benefits of good leadership and management[14]:

- Best-practice management development can result in a 23 per cent increase in organizational performance.
- Effective management can significantly improve levels of employee engagement.
- A single point increase in management practices (rated on a five-point scale) is associated with the same increase in output as a 25 per cent increase in the labour force or a 65 per cent increase in invested capital.

Additionally, firms adopting best practice around monitoring, targets and incentives are more profitable, grow faster and survive longer in every country looked at.[15]

Leveraging women's leadership and management talents brings business benefits. Global career consultants Right Management noted in a 2015 report[16] that companies with female directors perform better on share price, show a higher return on equity, have higher income growth and tend to have less debt and higher valuations.

Summary

There is a strong business case for improving business leadership and management: much of the poor productivity and underperformance of UK business is directly attributable to poor leadership and management. The business world shares the characteristics of conflict and chaos with the battlefield and there is much that can be learned from military leadership experience, both ancient and modern, about the importance of trust, compassion and courage for effective performance. Growth, in particular the transition from small- to medium-sized enterprise, requires an investment in new skills including leadership and management. Improvements in leadership and management lead to significant improvements in business performance and have an excellent return on investment. Good leadership and management can address not only profit but also people and planet – the triple bottom line. Women have much to contribute to business leadership: female-owned companies are relatively more successful than those owned by men. As wealth creators, business leaders can learn from the eight wealth dynamics profiles of role models such as James Dyson (Creator), Oprah Winfrey (Star), Jack Welch (Supporter), Rupert Murdoch (Deal maker), George Soros (Trader), Warren Buffet (Accumulator), Sergey Brin (Lord) and Michael Dell (Mechanic). Business owners who follow their natural wealth creation profile improve their chances of successfully growing their business; when they get sidetracked into another profile, which is not their natural fit, they are more likely to fail.

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Notes

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Growth capability 1.4

When you grow, you can just do everything faster. For a while. Then you have to change. Otherwise you will start to let down customers and struggle to keep control of costs, says Ian Henderson at the Institute of Operations Management.

People launching a new business and achieving the first stage of growth do so by understanding the market that they are aiming for, using this knowledge to develop products and services that the market wants and knowing how to promote their business. Critically, they can sell (we all know clever people who have the theory but this does nothing if it isn't converted into orders). They also understand the financial requirements of the business and obtain funding for establishment and ongoing development, when costs are a precursor to revenue.

Even then, however, many companies run into a brick wall at some stage in their growth. Typically, this becomes visible in difficulties meeting customer requirements, possibly accompanied by cash flow problems. The two are not unconnected of course – growth based on increased levels of business brings cost but if the volume of business being carried out doesn't lead to invoices and therefore cash then the difference between expenditure and income can lead to difficulties.

Although this applies to service sector businesses as well as manufacturing, we can perhaps visualize it more easily in a company making and selling physical products. What typically happens when things start to go wrong is:

- *On-time delivery falls*. The company lets down its customers and securing new business represents more of a challenge. In today's world, where customers still remember being told about Just in Time deliveries and minimized inventory in the 1980s, they expect high service levels and don't plan to hold buffer stocks to account for suppliers letting them down.
- *Inventory levels rise, so expenditure on materials and products increases at a level exceeding revenue from sales*. 'How can this be?' is a common question, when in fact we might ask the opposite. How could reduced levels of despatches not lead to increased inventory? We are still sucking in raw materials at the level in the plan and pushing this material through the plant at this level; if it doesn't then leave the business as sales, increased inventory is inevitable. Despite all the talk

about approaches to minimizing inventory, the main reason for excess is still customer arrears.

- *Various other costs rise*. Translating the finished product order book into material requirements becomes more difficult at higher volumes. This can lead to late ordering and sometimes paying a premium for short lead time supply. Shortages can mean air freight rather than sea for imported material. Arrears cause short-term changes to internal plans and thus increased changeover costs and reduced plant utilization. Some sales orders have to be shipped as separate deliveries to customers who are only paying one delivery charge.

Issues such as those described above are almost inevitable and senior management teams are often surprised to hear that their business is not unique when scenarios such as these are debated.

So what is the cause?

The cause of problems like this is relatively simple to identify.

In the early days of any business, planning and execution of its order book can be managed with little effort – there's little to plan and manage, after all. Translating customer requirements into demand on internal resources and external suppliers can be delegated to junior members of the team. The professional skills in the business are dedicated to product development, marketing, selling, the establishment of supply agreements for external goods and services – and to dealing with the providers of finance.

What changes in a period of growth? For a while – not much! The people tasked with planning and control of operations cope using established methodologies. There comes a point when they have to work a bit faster, but the business can continue to succeed. There then comes a point a little further down the line when simply running faster using the existing resources isn't enough. Typically, this is addressed by recruitment and this meets the need – for a while! Eventually, of course, the volume of work cannot be managed effectively by more and more people running around like headless chickens using the same tools and techniques that worked at the time of business launch. In fact, throwing more people at the problem can make things worse if the work content is divided in such a way that each process expands into several steps, carried out by different people; each handover brings delay and the potential for error.

A radically different approach is needed and central to this is recognition that the people in the middle of all this must be professionals. We know we need professionals to create products and services, to take products and services to market and to measure and report the financial results, but successful execution is somehow denigrated. This must change as the business grows. The people who will determine whether the proposed plan is achievable before committing cash to materials and other resources, and translate the plan at the highest level into those at the point of detail, need to use the best practice methods of their profession.

The key lessons of operations management

There are a number of approaches that can play a significant part in getting through the barriers to growth and continuing to perform as required at the new level. None in any way represent a 'this or that' choice – best practice in any business may utilize the individual best practice elements in a different way than in others, with a varying emphasis on the aspects that offer more relevance in the company's marketplace and the nature of its supply. What is common, however, is that the professionals in this area of the business need to understand all the approaches available to them; only then can they decide on the right combination and sequence of activities for the business.

Some of the approaches that need to be understood are:

- *Enterprise resource planning (ERP) systems.* Suppliers of ERP systems, quite naturally, promote their products as offering integrated communications throughout the organization and, through this integration, shared information meaning that everybody works to the same plan. This cannot be denied – people in the despatch department can plan their activities using information from one source in that they know from the system what sales orders are due to be shipped, what goods are in the warehouse and when any items that aren't yet available are planned to arrive. They don't need to telephone production departments or buyers to ask for this information, as long as they have faith in the processes by which the data is maintained.

  There's the rub, of course. The system is as good as the processes. 'Rubbish in, rubbish out' is often quoted and managing the implementation of ERP during a period of growth presents challenges. If a business starts down this path when people are already running around in 'headless chicken' mode then the implementation, which must involve these same people in defining the future, will be a short-term burden.
- *Material requirements planning.* MRP sits at the heart of ERP and was the first tool developed for integrated planning when computing power grew to make it feasible. The term was launched in a book by Joseph Orlicky in 1975 and is based around the principle of all component and material plans in a manufacturing business being driven by a single statement of planned output. This might be restricted to finished goods but might include component items sold into the aftermarket. It might be driven by projected despatches but in many cases must include some element of inventory planning; companies selling product from stock have to set their plan ('master production schedule') based on a demand forecast while others may plan on a combination of forward orders and forecast.

The top-level plan is 'exploded' using a definition of the product in terms of a hierarchy from products down through internal sub-assemblies and components to raw materials. The explosion has to recognize lead times at the various levels, together with rules for safety stock and making or buying in batches. Demand is passed from one level down to the next and netted against existing stock and planned supply to prompt actions to meet the plan. MRP sounds simple, and in conceptual terms it is. Many years after Orlicky's original book on the subject, however, it can present problems. Again, the people at the centre of planning and control need to be professionals.

In recent years, a more sophisticated approach to MRP, known as demand-driven MRP (DDMRP) has introduced further levels of sophistication to the management of information and alignment with the physical, pull-based approach of the Japanese JIT/Lean (see below).

- *Sales and operations planning.* A fundamental failing in MRP down the years is people driving it with an unachievable master production schedule. ERP systems help with the planning of capacity and there are points of detail that can help operations staff manage details of the process but one of the basics of success is the involvement of senior management in agreeing a statement of planned sales and output which directs sales activity, drives operations and generates financial plans. S&OP is what it says on the tin – 'sales' agreeing a plan with 'operations'. After this, of course, why should finance use any different numbers?

  Unlike MRP, which is essentially a driver of materials and production in a manufacturing environment, S&OP is of equal relevance in a service business. A proposed sales plan is evaluated in terms of resource requirements and modified where necessary to recognize that it cannot be supported. By the same token, spare capacity can lead to increased focus on particular markets or services, possibly discounted.

- *Lean.* When the Japanese approach to manufacturing was viewed simply as inventory-free or 'Just in Time', Western observers had missed the key point. The yellow 'kanban' card used to trigger more production of an item only when existing stock was about to be fully consumed (known as the 'pull' system) was central to all of this. Japanese manufacturing worked with little inventory because of other things. These businesses had attacked the reasons for inventory. John Krafcik, a researcher on the MIT project studying the difference between Western and Japanese automotive manufacturing (findings later published as *The Machine That Changed The World* by James P Womack, Daniel Roos and Daniel T Jones) coined the term Lean to signify fat (or waste) having been removed.

  Attacking waste is not, of course, restricted to manufacturing businesses. All businesses should look to take out inefficiencies and this is of particular relevance at a time of growth. A natural consequence of the pressure of growth is inefficiencies; another is the impact these inefficiencies have on performance.

- *Business process reengineering/improvement*. 'Business process reengineering' first appeared in a book by Michael Hammer and James Champy in 1993. It could be argued that the case studies highlighted in the book reflected the application of the Lean attack on waste in office processes but some significant lessons are of relevance today in striving for 'good' processes – defined as:
  - tasks carried out in 'one stop shop' mode to eliminate transfer and delay;
  - parallel rather than sequential processing of tasks;
  - managing by exception – as opposed to the 'check and chase everything' approach that remains central to many operations today.

There are many other examples of best practice tools, although these probably lead the way in terms of their relevance to businesses suffering the pain of impediments to progress caused by growth. We all need our operations people to be fully aware of the tools and how to apply them; central to this remains the absolute truth that we need to recognize Operations as a profession.

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The IOM originated as the British Production and Inventory Control Society and was renamed in 1996 to reflect the fact that companies in the service sector face the same challenges as those in manufacturing and warehousing. People responsible for planning and execution from companies in the two areas can benefit from an understanding of many of the same tools and techniques.

The Institute offers regulated qualifications as well as a short course programme and conferences, seminars and regional meetings at which members can listen to experts in the field but also discuss matters with their counterparts from elsewhere. Speakers at such events have usually learned to put aside high opinions of their standing before taking the platform; delegates will probably learn just as much from informal discussion with other delegates as they do from any leading practitioners.

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