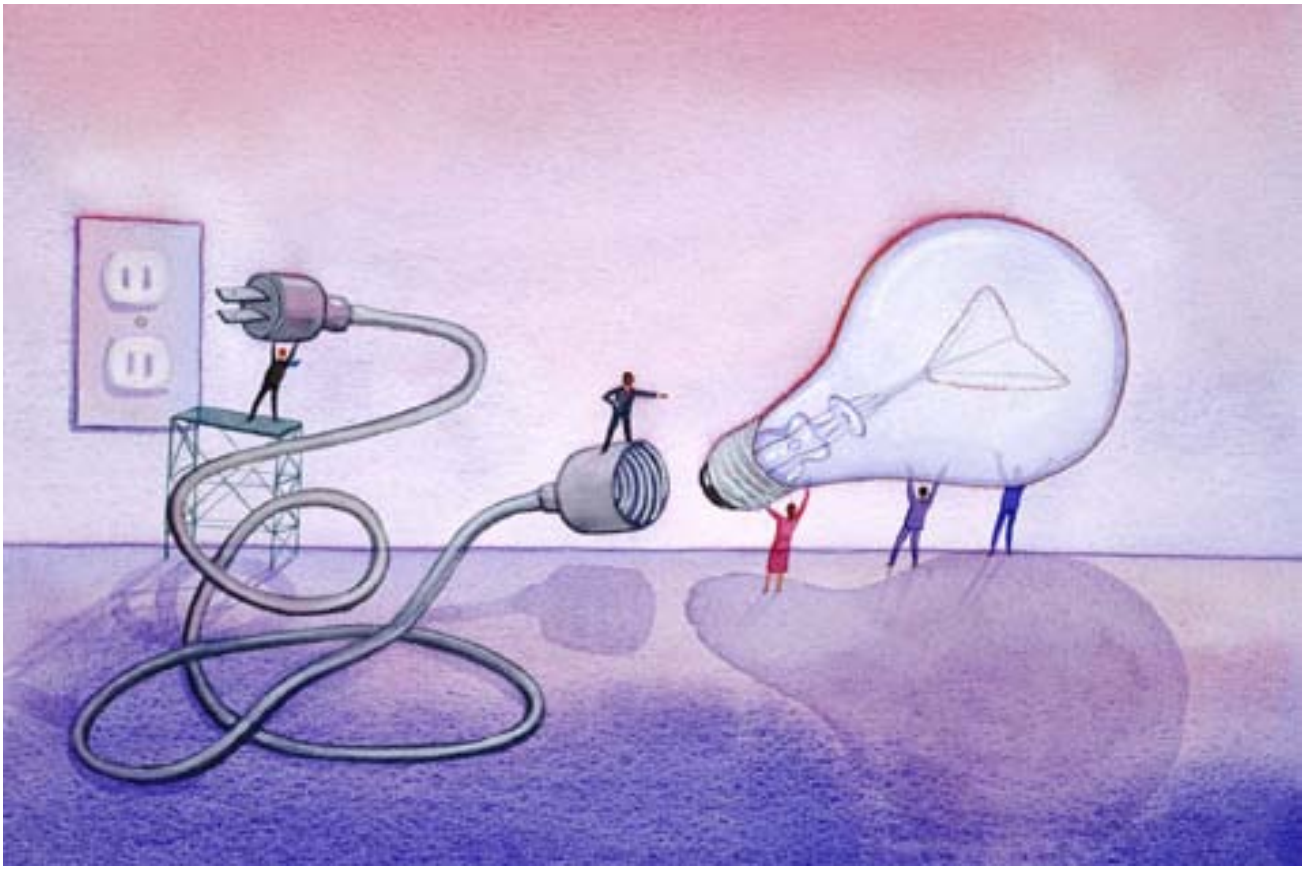

Excerpted from

Innovation And Growth Through Collaborative Networks

Jeffrey Shuman and Janice Twombly

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Scottish Enterprise

The Rhythm of Business®

"The nature of innovation – the inherent definition of innovation – has changed today from what it was in the past. It's no longer individuals toiling in a laboratory, coming up with some great invention. It's not an individual. It's individuals. It's multidisciplinary. It's global. It's collaborative."

Sam Palmisano
Chairman and CEO
IBM Corporation

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In Search of Growth in a "Flat World"

"The commercial playing field has opened up to more people in more places on more days in more ways than anything like it ever before in the history of the world. This is what I mean when I say the world has been flattened ... creating this new global playing field for multiple forms of collaboration."

Tom Friedman
The World is Flat: A Brief History of the Twenty-First Century

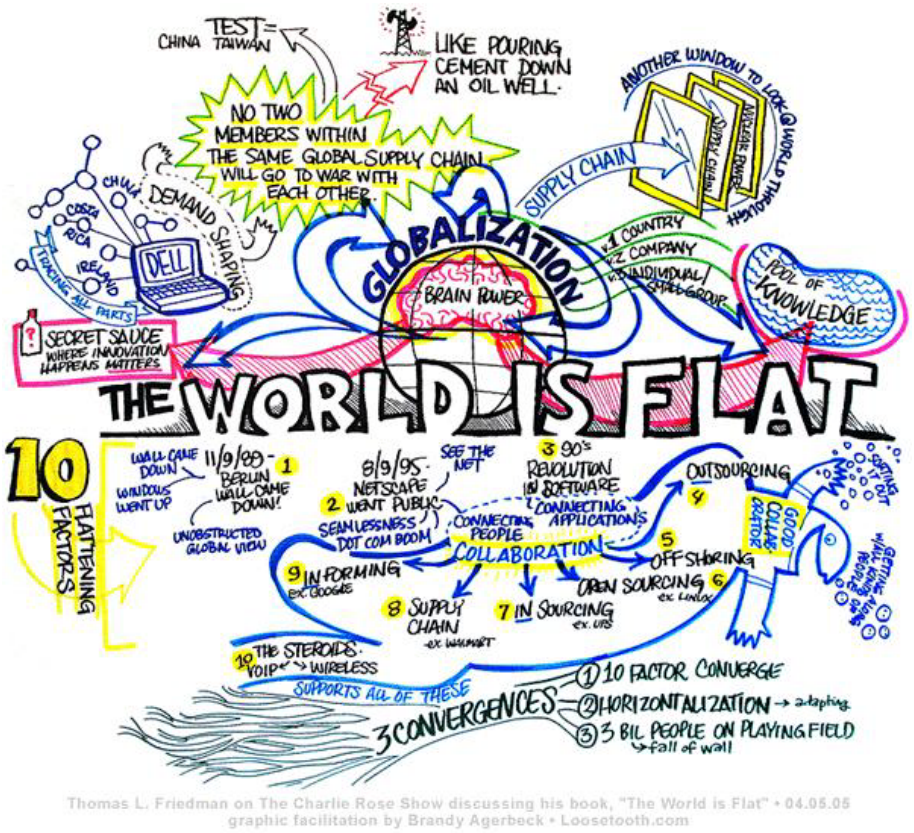
We live our lives and conduct our business in an increasingly connected and interdependent world. Advances in information and communication technologies have made it possible for virtually anyone to connect with anyone else, anywhere and at anytime. The digitisation of information along with common technology and business standards have helped spread knowledge so that work can be conducted anywhere in the world. It has also empowered consumers and citizens to take things into their own hands, often demanding a more personal solution for their needs. Liberalisation of trade and investment flows, democratisation of air travel, the fall of the Berlin Wall, and the growth of the middle class in China and India are opening new markets and fundamentally altering the way companies must think about their businesses.

The increase in connectedness is creating opportunities to generate new wealth and improve health through scientific and technical achievement. Wireless communication technologies increase profits for Bangladeshi farmers by bringing transparency to market prices. Small businesses can use the reach of an E-Bay or Amazon to find customers who would never seek them out in the physical world. Authors, artists, and musicians can publish their works without using traditional channels. An entire encyclopedia has been produced by the users of Wikipedia. And when natural or man made disasters interrupt the production of goods and services, logistics network organisers such as Hong Kong based Li & Fung seamlessly shift production to somewhere else in the world.

In his 2005 best-selling book, *The World is Flat*, Tom Friedman provided this tongue-in-cheek label for the many phenomena opening up the world to new players and new ways of collaborating[1] (see Figure 1 – The World is Flat). Of course, the world isn't really flat; nor is the commercial playing field level. There are still winners and losers. Economists still view the world as a zero sum game with a fixed amount of resources to be allocated among the players. And if the world is flat, then those scarce resources are spread thinner, across more players.

Examples of the underside of connectedness and interdependence are not hard to find. Companies once seen as leaders in their fields are selling out or closing down. Many once-well-paid manufacturing workers claim, perhaps rightly, that the costs of globalisation and technical advances have squarely hit their wallets. Even highly-educated professionals have seen their jobs disappear or shift to lower wage markets. To some, the flat world is all about a flight to low costs.

The promise and upside of the flat world is growth, prosperity, and social engagement through innovation and collaboration. Opportunities abound



The World is Flat
Figure 1

for private businesses to partner with governments to find ways to improve the efficiency and effectiveness of health care, for example. Some of the great challenges our world faces such as finding viable alternatives to dwindling supplies of oil and gas, preserving rain forests, and arresting man-made global warming require citizens, businesses, and governments to work together for the common good. These societal challenges are also business opportunities that allow new industries to develop and jobs to be created. The ability to collaborate allows the limited resources of each sector of society and each actor within a sector to be better leveraged, to be used more effectively and to create new wealth. Collaboration is not a zero-sum game. It draws upon the strengths and resources of all parties to a collaboration and can help both rich and poor prosper.

Economic growth is a strategic imperative for governments, industries, and firms. In the flat world that economic growth comes through harnessing new capabilities and redefining borders. It matters little where the idea is generated, only how value is created and distributed. However, government policies, the structure of organisations, ways of working, and how value is measured are still largely stuck in the pre-flat

world institutions of the industrial economy. The magnitude of the change required is underscored by Peter Drucker, perhaps the greatest management thinker of the 20th Century, when he prophesised in 2000:[2]

"The corporation as we know it is unlikely to survive the next 25 years. Legally and financially, yes. But not structurally and economically."

Eight years later, we are witnessing the realisation of Professor Drucker's prophesy. Slowly firms are embracing the power of openness and innovating not just product and service offerings, but processes, business models, and ways of working to harness the opportunities presented by the flat world – and using openness and collaboration to manage the risks of globalisation. Drucker's prophesy applies to all siloed organisations. Governments and not for profits are also rethinking how to best manage and develop infrastructure and the role they should play in encouraging economic growth.

The transformation isn't happening fast enough for many companies, for whom the growth engine seems to be sputtering. Traditionally, companies could invent a product, find a customer segment, market the product, expand internationally, develop a few product adjacencies, manage smarter and keep repeating the process. Today, nimble competitors appear overnight. Fickle customers find solutions more to their liking. Technological developments render once profitable products obsolete in a flash. For many companies, product oriented growth strategies are not enough to provide anything like the level of growth their shareholders require.

When organic growth isn't enough, CEOs seek out acquisitions. For a time, the numbers look good. There is often an immediate bump in revenues and apparent synergies that can reduce costs. There is a price to pay for the short term boost, however. As many as 70% to 80% of mergers and acquisitions fail, often in the first 18 months.[3] Strategic alliances are an increasingly popular means to achieve growth. In some industries, their rate of growth is greater than that of acquisitions.[4] Unfortunately, their rate of failure is only slightly lower.

It generally takes a shock to the system for a system to take on fundamental change. Such has been the case for companies and sectors alike. Media and publishing remains confused about how it makes money, 13 years after Netscape went public and made the World Wide Web available and nearly free for anyone with thoughts to share. Having begun to lose revenue as patent protection ends, the pharmaceutical industry is just beginning to move away from its blockbuster-dependent model. The US auto industry has posted some of the largest losses in corporate history. Daimler has been relieved of its Chrysler burden by private equity and all of the US's big three auto makers have been rumoured to be near bankruptcy. As oil flirts with $100+ a barrel and reducing one's carbon

footprint has become fashionable, these companies continue to turn out gas-guzzling SUVs. Do they not see the market forces aimed at them? Or are they simply too mired in their ways to change? The need for embracing new ways to achieve growth can be seen in industry after industry. Figure 2 – Factors Driving the Need to Collaborate for Growth, presents a few examples of industries under particular pressure.

Industry	Factors Driving the Need to Collaborate for Growth
Pharmaceuticals	• Patent expirations • Dearth of new products in the pharmaceutical pipeline • Increased use of biologics • High cost of drug development • Pricing pressures • Potential for personalised medicine
Oil and Gas	• Desirability of alternative forms of energy • Increasing demand, especially in the BRIC economies • Technical advances required to access reserves • Increasing power of national oil companies • Increasing global demand for essential commodities, such as steel • Graying of the industry and shortage of engineers
Semiconductors	• The limits of Moore's law • Increasing costs and complexity of innovation • The need for new chemicals and materials technologies • Customers' desire for "manufacturing ready" technical innovation
Public Sector	• Consumer/citizen demands for service • Cost of maintaining infrastructure • Increasing debt loads • Costs associated with an aging society • The need for global connections to enable growth and innovation

Factors Driving the Need to Collaborate for Growth
Figure 2

The increasing costs and technical challenges common across most industries are resulting in a rise of specialist firms with whom more traditional firms are finding they must collaborate. Pharmaceutical giants depend on firms specialising in new drug discovery and delivery technologies. Semiconductor firms look to chemical companies to develop new materials to create more powerful chips. Even integrated oil and gas companies turn to oil field services firms to develop production enhancing technologies. Couple the technical needs with the shortage of skilled scientists and it becomes apparent that no company can go it alone. The public sector is also recognising that overlapping infrastructures are costly to maintain and don't necessarily provide the service citizens seek.

Why collaborate? By collaborating, firms seek to spread risk and expense, maximise revenue and service, and gain access to intellectual property, expertise, know-how, relationships, and other resources. Today, innovation and growth in the flat world require an organisational ability to collaborate that must be deeply embedded in the mindset, skillset, and toolset of every organisation.

Innovation in Innovation

Life in the flat world requires innovation in how organisations interact with their customers, suppliers, partners and communities. No one organisation has the talent, the resources, or the time for the continual innovation the global marketplace requires. Like the opening of the commercial playing field to more players and forms of collaboration, the innovation processes within organisations are opening themselves to their stakeholders and the broader world. Organisations are learning to focus on their strengths and to complement them with expertise and resources from outside their borders. In the process they are finding that their view of what constitutes innovation, the implications it has on the structure of their organisations and how they go about their work is transformative.

"Constant reinvention is the central necessity at GE…We're all just a moment away from commodity hell."

Jeffrey Immelt

Chairman and CEO, GE

As Henry Chesborough, one of the leading scholars of open innovation describes it, open innovation is at its simplest, "ideas in and ideas out."[5] It creates permeability in the organisation so that ideas from outside can enter and those from inside may take flight outside the organisation. At the other end of the spectrum Sam Palmisano, Chairman and CEO of IBM, believes that "real innovation is about more than the simple creation and launching of new products. It is also about how services are delivered, how business processes are integrated, how companies and institutions are managed, how knowledge is transferred, how public policies are formulated – and how enterprises, communities, and societies participate in and benefit from it all."[6]

In the vertically integrated organisation that characterised the industrial age, innovation was what happened in a company's test labs. Some of these famous labs, including AT&T's Bell Labs, IBM's Watson Research Center, and XEROX's PARC, are responsible for the very inventions which have helped to engage more and more people in economic activity and bring about today's flat world. These storied research labs also help perpetuate the myth that innovation is the province of the solo scientist toiling away in his/her lab in pursuit of true knowledge and discovery.

Ideas in and ideas out is a concept equally applicable to any organisational structure or activity. Innovation today is a mix of product/service innovation, operational innovation, business model innovation, and management innovation.

- ***Management innovation*** *– Innovation in how the resources available to an organisation are put to use in pursuing opportunities or controlling risks*
- ***Business model innovation*** *– Innovation in the structure and/or financial model of the organisation*
- ***Operational innovation*** *– Innovation that improves the efficiency and effectiveness of core processes and functions*

- ***Product and service innovation*** *– Innovation in the products and services the company offers to meet its customers' needs*

Organisations are complex, adaptive systems and as such an innovation in one aspect of it has implications for other elements. A holistic view of innovation is required to embrace the opportunities the flat world presents. To be successful, a company can no longer focus on designing the next hot product and the next when customers find its customer service processes to be abysmal. It is the organisation as an entity which must innovate – and innovate everything about itself. Innovating one's business model requires a concurrent innovation in the way the organisation is managed. This element is often forgotten and as seen in some of the examples presented throughout this paper, it is often the reason for failure when the organisation opens up to external influences.

Innovation is the Engine of Growth

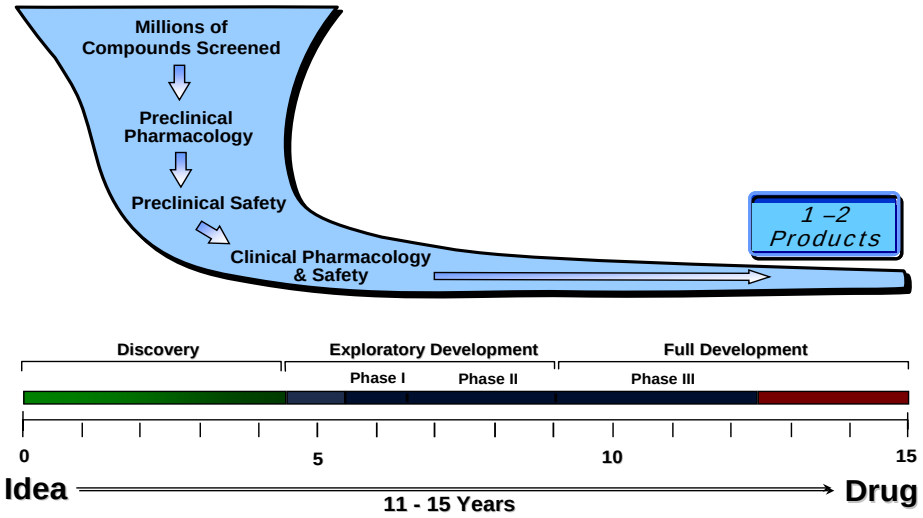
Innovation, then, is a key driver of growth, performance, and valuation. It has become a key differentiator, separating winners from also-rans. *Innovation 2007*, a Boston Consulting Group Senior Management Survey, found a direct relationship between innovation success and long-term stock performance.[7] The capability to innovate is highly sought after, with companies spending ever increasing amounts in pursuit of it. According to a September 2007 McKinsey study of more than 1,400 executives from around the world, greater than 70% say that innovation will be one of the three top drivers of growth for their companies in the next three to five years.[8]

Unfortunately, investments in innovation aren't producing the desired results for many companies. Less than half of those surveyed by Boston Consulting Group for the *Innovation 2007* study were happy with the return on their companies' investments in innovation.[9] Similarly, only half considered their innovation capability to be superior to that of their competitors.

The reasons for this state of affairs are many. Much of the money spent on innovation winds up creating products and services that are of minimal incremental value over that which the firm already offers. Often the customers sought are the same customers who bought the original product, or who represent an even narrower niche than the carefully defined market on which the company focused originally.

Innovation is a risky proposition. Consider the pharmaceutical industry. For every product that makes it to market, millions of compounds must be screened, hundreds of discovery approaches investigated, and a handful of potential products evaluated in clinical trials. The path from idea to market is often 11 – 15 years long and is estimated to cost £600 million ($1.2 billion) (see Figure 3 – Pharmaceutical R&D Process)[10]. Often the product that results also represents incremental innovation – a

formulation better tolerated by certain patients or one only slightly more efficacious than its predecessor.



Pharmaceutical R&D Process
Figure 3

"In the first half of the 20th Century 39 Nobel Prizes were awarded to individuals as opposed to four for teams. In the second half, 33 were awarded to individuals as opposed to 36 for teams."

Tom Koulopoulos
Executive Director, Babson Center for Business Innovation

The technical advancement that is behind the flat world is also making it harder for companies to innovate products and services. It often takes multiple technologies working together to create a viable product. For example, software is useless without hardware and Apple is virtually alone in being able to innovate both. Indeed, evidence exists that the solitary inventor may have more inventions that produce breakthroughs. They also have more failures. An argument could be made that Apple proves the point. According to research by Lee Fleming of Harvard University, lone inventors account for more than 20% of all patents held by U.S. corporations.[11] Collaborations of scientists on the other hand are more likely to produce a greater quantity of innovations as the more opportunities scientists and engineers have to experiment the more likely they are to produce. Fleming refers to this as the "average score" of innovation. While paradoxically collaborations may produce a higher average score, they also are less likely to produce breakthroughs. There is a place for the lone inventor, but don't bet the house on him or her.

Vertically integrated research labs also tend to perpetuate another myth: Innovation is synonymous with invention. These labs excelled at generating patents for their organisations, but only a small percentage are ever commercialised. Companies such as Hewlett Packard, IBM, Unisys, and BT have thousands of unused patents sitting on the shelf. About 90 to 95 percent of all patents are idle, according to the nonprofit National Institute for Strategic Technology Acquisition and Commercialization.[12] Simply put, invention is a new or novel thing or way of doing something, innovation doesn't happen until the invention is put to use and creates value for the user and financial returns for inventor/firm. In the flat world, it

has become easier for the user to get value and more challenging to get the financial returns for the inventor/firm.

The view of invention as innovation is evident in how innovation is measured. Firms and governments look to money spent on research and development as their benchmark. Other measures such as patents generated and scientific papers published are indicative of the activity level of the subject lab's inventiveness, but are not necessarily indicative of innovation. Without a relationship to commercial outcomes, it becomes difficult for business to sustain funding for R&D. And indeed, when times are good, R&D is flush and when times are bad, it is among the first budgets to be cut. This is true about individual firm spending on R&D, as well as government spending on its own R&D and other programmes intended to foster private sector spend.

Evidence shows that spending more money on R&D does not necessarily produce innovation. As part of its 2006 study of 765 CEOs, *Expanding the Innovation Horizon*, IBM found that fewer than 20% of respondents named internal R&D as the most significant source of innovative ideas.[13] And money spent on true innovations does not necessarily result in a bump up in R&D spending. For example, assume a company opens a website that allows its customers to shop and make purchases without having to visit a physical location. The new ability to purchase online creates value for users by giving them convenience and thus giving them back some time and corresponding opportunity for greater productivity or greater leisure. The firm gets new value assuming the website provides them access to new customers and perhaps improves the profitability of existing customers. The investment in the website is unlikely to be recorded as research and development expense. Similarly, an engineering firm may design a new tool for a specific customer, to meet that customer's unique need. For helping the firm develop it, the customer may get a period of exclusive use and the engineering firm may have a product it can sell to others once the exclusivity expires. Again, despite having created value for both the user and the innovator, this new tool that creates economic value will not be counted as innovation.

Governments also miss the mark when measuring innovation.[14] They are keen to track research spending by region and industry, to report numbers of patents filed and scientists employed. While important, these are inputs into the innovation process and do not provide evidence of actual innovation that can grow economies.

The convergence of the flat world, the need for growth, and the inability of internal R&D to produce the innovations needed for that growth require a new approach. Today, all innovation must be open to a greater or lesser degree. The innovation in innovation is that it is no longer just the province of scientists and engineers. Innovation is occurring in the very definition of the organisation, its boundaries, and how it interacts with its stakeholders and communities. Without a doubt innovation must be collaborative.

Innovation is Collaborative

When innovation depends on the ability to bring ideas in from customers, to work with a network of partners, or leverage the expertise in a sister business unit, innovation is collaborative. Collaboration in a business context is a relatively new phenomenon, corresponding to the development of the information and communication technologies that have enabled the flat world. Before these technologies, specifically the internet, gave us the ability to share information, make connections, and engage in distributed work, collaboration was not widely used in business and was largely confined to academia.

Technology is an enabler of collaboration, but having technology available does not make collaboration happen. When practiced appropriately, collaboration is a strategic behaviour designed to make the most of available resources and to create new value – new currencies – that can be put to use in achieving the intent of collaborating. As Friedman describes it, collaboration is a means of engaging new actors and drawing upon their currencies to create economic value and societal goodwill.[15] Collaboration is how work gets done when it is best not to do it alone.

Our working definition of collaboration is:

> ***A purposeful, strategic way of working that leverages the resources of each party for the benefit of all by coordinating activities and communicating information within an environment of trust and transparency***

Collaboration is a behaviour that is poorly understood, thus it is hard to get collaboration right. Studies from Accenture, IBM, and others consistently report that in excess of 50% of strategic collaborations fail to achieve their objectives outright or otherwise disappoint.[16] IBM's study *Expanding the Innovation Horizon* found that CEOs recognised the importance of collaboration and external partnering to their company's future, yet they bemoaned the lack of collaborative ability within their work force.

Collaboration Myths

When it comes to collaboration, there are three damaging myths widely held to be true:

1. Everyone knows how to work in a network
2. Collaboration is just another word for working together and getting along
3. Collaboration is either on or off – either you're doing it or you're not

"CEOs believe collaboration is absolutely critical, but there is a problem: Although collaborative aspirations were high, actual implementation was dramatically lower. Citing a lack of the skills and expertise needed to partner externally, many CEOs refer to partnering as 'theoretically easy' but 'practically hard to do.'"

IBM Global Services
Global Study of 765 CEOs

There are people who do understand collaboration and intuitively use the give and get of collaboration to create mutually beneficial outcomes. They can navigate the silos within an organisation and span boundaries within and between organisations, building their personal networks as they go. They are the people who always seem to have the right contacts and get others to do things for them. Because collaboration is not well understood, it is often considered to be the same as cooperation or teamwork. But neither cooperation nor teamwork adequately describes collaboration. True, collaboration does require working together with another party as teamwork implies. Teamwork also implies a common goal, which is not always the case in collaboration. Cooperating is only one step beyond acquiescing and cooperation can be voluntary or it can be forced. However, collaboration cannot be forced. It requires the crossing of boundaries and influencing those over whom one has no control. This is the strength and promise of collaboration, as well as its challenge. It opens up the possibility of accessing the resources, knowledge, and relationships the other party has and using both parties' resources for mutual benefit. It also raises the spectre of counting on someone who has no stake in your success.

The reality is that despite the de-layering of organisations that has occurred and continues to occur, most people are more familiar with working in silos and are more comfortable with traditional organisational hierarchies and boundaries. Working within a network that's been essentially overlaid on top of existing organisational silos and hierarchies poses challenges that often go unrecognised. For example, work can be delayed if to collaborate with a colleague in a partner organisation, one must first work vertically within his/her company and then someone higher up makes a contact with the partner. Front-line counterparts, whether co-promoting sales people or scientists in a lab, are most efficient when they work directly with one another.

The bio-pharma industry presents an example of the network myth in action. In recent years, the industry has relied on co-promoting their drugs with other pharmaceutical firms to market their drugs to physicians and other customers. In the US in particular this has led to having several – in some cases as many as eight or nine – salespeople carrying the same drug and calling on some or all of the same physicians. Each of these salespeople represents multiple drugs, some or all of which may also be co-promoted with additional partners. The numbers add up quickly. One salesperson may have 20 or more other sales reps with whom he or she is expected to co-promote. Managers likely have even more counterparts. By and large, management assumes that they've provided their sales representatives with additional resources in the form of more people helping them sell. They have. It is just that the complexity of having to coordinate with all these salespeople means that many salespeople collaborate with no one. In assessments of more than 5,000 co-promoting pharmaceutical sales reps, managing this complexity is consistently the main challenge to collaboration that these salespeople

face.[17] However, most companies have yet to acknowledge the complexity and continue to believe the myth that everyone knows how to work in a network.

Secondly, most people think that collaboration is about being nice when working with others. We learned how to do it as children, so of course, all business people can turn on their collaborative charm when the time is right. Truth is collaboration is not another word for nice. It also isn't another word for not nice. It is a purposeful strategic behaviour intended to accomplish something that couldn't be done alone or would be done alone much less effectively.

Collaboration is often counter-cultural. Especially in environments where people have prided themselves as the "best" or "the most innovative," collaborating can be seen as a sign of weakness – an admission the organisation can't be successful on its own. Often times the culture of a firm is one of "not invented here," or "we know everything." In these circumstances, the culture allows pretending to be nice to pass for true collaboration.

The reality is that the objective of collaboration is to create outcomes no single party could create by itself. Collaborating leverages resources one doesn't control to affect a desired outcome. Skilled collaborators use the currencies of others to achieve their objectives while simultaneously using their own currencies to help their co-collaborators achieve their objectives. This reciprocal give and get is the essence of collaboration and the source of innovation.

The third myth about collaboration is that it is black or white. Either one is collaborating – or not. In reality, collaboration is a continuum requiring a degree of transparency and a level of interaction necessary to have sufficient trust to conduct the activities at hand. As was discussed in the previous section, collaborative intensity varies depending on the purpose of collaborating. The collaboration required to engage in a joint marketing effort is not the same as that required to co-develop a game changing technology. The extent of collaboration desirable in any given situation depends on the potential value of that collaboration. And just as the potential value to be derived may change over time, the collaboration required to realise that value will also change.

Mastering Give and Get

The value of collaborating is in the relationship currencies one is able to access and employ in pursuit of the purpose of the collaborative network. Recognising and using relationship currencies requires an overarching philosophy best described as "one must give to get." Relationship currencies are the sources of value, such as access to a thought leader or decision maker, knowledge of a company's technology roadmap, or credibility through association, that are only available within the context of

Guidelines for Using Relationship Currencies

1. **A relationship currency has value only if you have it when needed**
2. **Used properly, relationship currencies can be used over and over again. In some instances, their value grows over time**
3. **The value of a relationship currency is determined by the recipient of that currency**
4. **You may need to offer more than one relationship currency to get what you need**
5. **You have to be careful not to over-commit the currencies you are providing to others**

a relationship built on trust and reciprocity. The more intensely collaborative a relationship, the more currencies are and must be exchanged to make the collaboration successful.

People implicitly use relationship currencies all the time in their interactions with others. In business, these currencies usually take the form of information, access, insight, or other sources of value, such as the right to exclusive use of a new piece of production equipment for a period of time, received because of a willingness to test and provide data that can improve the equipment and increase its ultimate marketability. When the use of relationship currencies is made explicit and purposefully linked to strategic objectives, they become powerful instruments for creating value. This is especially true when you consider that the knowledge, connections, experiences, and skills of people are the primary drivers behind business success today. Individuals control how they share these sources of value and only do so when they feel they'll be properly used in the conduct of good work.

Examples of how relationship currencies are put to use are revealed when one looks at the give and get in collaborative networks. Biotech companies and device firms want the development and commercialisation expertise and resources the pharmaceutical giants have in order to accelerate their growth. The pharma companies want the discoveries and innovation processes of the bio-techs to build their pipelines of products that they can develop and commercialise.

Semiconductor firms want the knowledge gained and efficiencies learned when material, tool, and capital equipment companies bring a manufacturing ready solution to them. For this to happen, the chip makers must open up precious intellectual property to aid the chemical companies in formulating the right materials. According to Bernard Meyerson, IBM Fellow, Vice President Strategic Alliances & CTO - IBM Systems & Technology Group, "IBM has built what it calls an 'open ecosystem' of chip R&D with nine partners, including AMD, Sony, Toshiba, Freescale Semiconductor, and Albany Nanotech, a university research center. All told in five separate alliances, IBM partners have contributed more than $1 billion to help expand the company's facilities and buy the latest chipmaking equipment. But just as important, they've provided brainpower, including more than 250 scientists and engineers who now work in East Fishkill. As a result IBM's chip operation boomed. All told, the members of IBM's chip alliances have saved $2 billion to $4 billion on research costs by throwing in together. Market research outfit In-Stat estimated the group will save an additional $7 billion over the next three years."[18]

The holders of the knowledge and technology – the relationship currencies in our example – likely do business with competitors of the user of the technology. These exchanges are essential for innovation to

occur and because of their sensitive nature, only occur within the context of a collaborative relationship.
It is a truism and reality that one must give to get. A research scientist won't share his/her data with a colleague unless he/she expects some benefit for it, either now or in the future. One-sided relationships don't last; however, the give back doesn't have to happen immediately. The best business relationships have a rhythm to them. The give and get over time is what builds trust, validates or invalidates assumptions about how to achieve objectives, and develops innovative ways of creating value for all concerned.

Collaborative work is an iterative process of learning how to organise resources and conduct that work in a way that gets one successively closer to desired results. The how cannot be known, it is only emergent within the context of the dynamic environment in which answers are sought. One makes assumptions, puts them into practice by interacting with others, learns, makes better assumptions and then puts *them* into practice. This continuous give and get that occurs when people interact towards achieving their common and individual objectives is the essence of collaboration and is the rhythm of business.

"A horse, a horse, my kingdom for a horse…"

Shakespeare's Richard III in the heat of battle

Too often the full range of relationship currencies is overlooked as resources when a collaborative network is being formed. Deals can go sour if they are not considered in the value proposition. Using relationship currencies wisely can result in ground breaking collaborations. Scotland's Translational Medicine Research Centre (TMRC) is a case in point.

The Give and Get of Scotland's Translational Medicine Research Centre

The TMRC, one of Scotland's premier life science projects is a collaborative network whose members include four of Scotland's leading universities (Edinburgh, Aberdeen, Dundee and Glasgow), Wyeth Pharmaceutical Co, Scottish Enterprise and NHS Scotland Grampian, Greater Glasgow, Lothian and Tayside. The network is choreographed by TMRI, Ltd., a company owned by the four universities, in collaboration with the associated NHS trusts and Scottish Enterprise.[19]

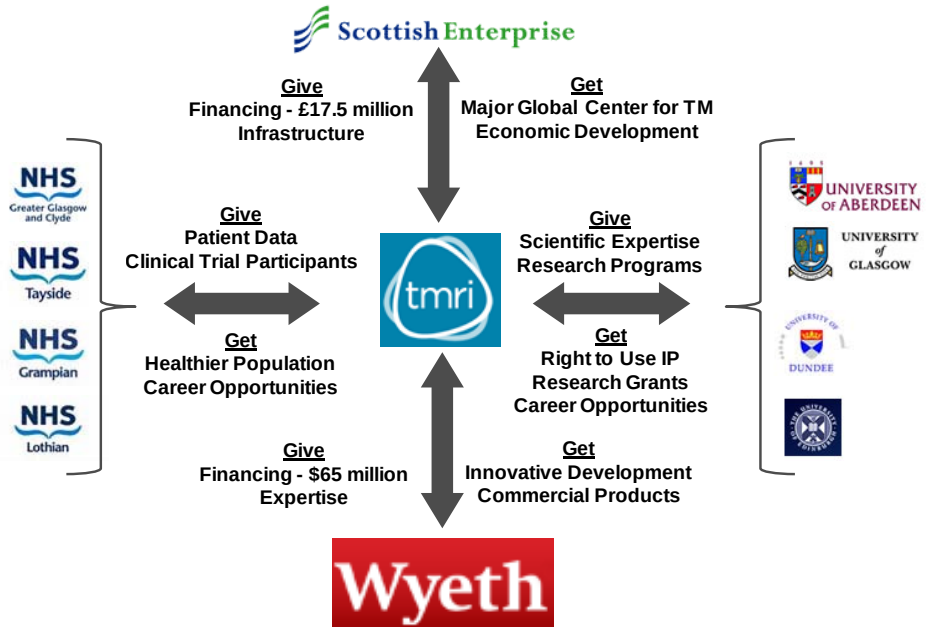
The unifying purpose of the network is to enable the development of next generation medicines by reducing the failure rate in the transition from drug discovery to drug development. Translational Medicine uses tests, called biomarkers that can be measured in patients and used to follow the response to treatment of patients with certain common diseases.

The network will include bio-markers in specialised trials conducted by Scotland's significant translational medicine community. As choreographer, TMRI licenses tools, targets, and other bio-marker outputs for commercial applications.

"The Translational Medicine Research Collaboration represents a truly novel concept in industry-academia-government partnership, and we are delighted to be the major pharmaceutical partner in this relationship. Translational medicine is the key to successful development of the next generation of innovative medicines which will truly make a difference for patients the world over."

Frank Walsh
Executive Vice President of Wyeth Research

TMRC is a brilliantly designed network that came into being when a customer, Wyeth Pharmaceuticals, came forward. Given the varied participants that had to be brought into the network to make it valuable to all and with an acceptable level of risk to all, it took about a year from concept to contract. When the deal was finally done, a collaborative network with a lofty purpose and great ambitions was formed. Based on the members' initial expectations, Figure 4 – TMRC's Collaborative Network, summarises the give and get that makes the network valuable for all.



TMRC's Collaborative Network
Figure 4

As seen from the diagram, the mix of currencies that form the give and get include money, data, infrastructure, expertise, career development, and more. Taken together, the TMRC is not only intended to produce innovative medicine, but, like the Harvard Stem Cell Institute is an innovation in how the organisation is structured and creates value.

The underlying philosophy of collaboration is give and get. Give and get implies an ability to uncover motivations, needs, and desires that are only partially articulated, if articulated at all. And what is important and useful to one party to the collaboration may be of limited use and value to another party. Only the recipient can assess value, as value is personal, relative, and time sensitive**.** Thus a piece of information offered up may be of negligible value to the person offering it, but it may be what connects the dots for someone else and provides powerful insight. But if the dots aren't connected until it is too late to inform an important decision, the information is of little value.

When one understands what is important and useful to someone else, understanding what is motivating their actions becomes clear. This is powerful insight that when used properly can make obstacles vanish and innovative solutions materialise.

The Secret Sauce of Innovation

Collaboration is not a simple concept. The implications for traditional hierarchical structures are profound. However, to truly benefit from the promise of the flat world, to get the growth innovation provides, organisations in all sectors, public, private, and governmental, must develop an organisation wide ability to collaborate. The following section addresses what a collaborative capability is and how to develop one.

Agile, Innovative Organisations

Innovation is the primary driver of growth for most business sectors and governments. Today, innovation is collaborative and collaboration occurs in networks. The previous sections of this paper have explained why the collaborative network is the fit-for-purpose organisation design best suited to pursue innovation in every sense of the word. We've discussed what an organisation-wide collaborative capability is and why it is necessary to effectively create value through dynamic networks. In this section, we explore the business model innovation that is necessary to organise in collaborative networks.

The Agile Organisation

One of the implications of the flat world is the empowerment of the customer. It matters not whether the customer is a business, a consumer or a citizen. The customer is now an active, engaged participant in creating their own experience, in co-creating the value they seek. The customer participates in a variety of networks, each designed to meet a specific set of needs that customer has. For the network to function efficiently and effectively it must also meet the needs of the choreographer and member firms, but without a customer that is core to the unifying purpose of the network, the network won't exist. In some instances customers participate in numerous networks to meet a set of needs, such as belonging to both Facebook and MySpace. They move in and out of networks as their needs evolve or when any single network ceases to meet their needs. The enabling technologies of the flat world and the rise of new competitors across the globe are necessitating that organisations have the ability to anticipate their customers evolving needs and dynamically assemble and reassemble the network of partners best able to meet those needs.

Perhaps no set of needs is more transient than the needs that relate to a consumer's desire to be in fashion. Yet until recently, fashion conformed to the seasons of the calendar, and what would be fashionable was determined far in advance of when merchandise appeared in stores. Now, again thanks to the enabling technologies of the flat world and the modularisation and globalisation of work, "fast fashion" has emerged as the new dynamic within the fashion industry. Zara stores, a subsidiary of Inditex SA, the second largest clothing manufacturer in the world has epitomised the need to sense the fickle tastes of consumers and get them the trendy clothes they seek as quickly as possible.

When Zara first opened in the mid 1970s it had two key attributes – "an eye for consumer tastes and a production process that started with the final price and worked backward to the most-efficient production."[20] Later, it added a proficiency in logistics to enable it to move goods quickly around the globe to its rapidly expanding number of stores. New

collections are shipped to stores twice a week, using a number of airline partners to keep shipping times as short as possible. Shipments are direct, factory to stores. Zara makes two-thirds of its goods in relatively high cost labour markets, but believes the costs are offset by the flexibility of having production close to its warehouses and distribution centres.

What Zara has done is to configure an agile organisation. It has positioned itself to anticipate customer trends based on information it gathers on top selling products and has built an organisation that can respond accordingly. Agility is a quality "marked by the ready ability to move with quick easy grace." As it is commonly used, agility is viewed as the ability to quickly respond to changed conditions, defining agility as an internal ability driven by external events. The idea is that the organisation needs the agility to adapt to change as quickly and as seamlessly as possible. However given the pace of change, the variety of options available to customers, and generally minimal switching costs, organisations can't wait until its customers have voted with their wallets to opt out of one network and into another.

Organisations must have a proactive approach to assembling the right capabilities, and the right networks of relationships that anticipate what the customer wants. Thus, agility is not an externally driven ability. It is an internal condition rooted in the organisation's ability to design and put in place at any one time the right collaborative networks to acquire and retain the customers it seeks, continuously innovate its offerings, and provide the financial return and other currencies its members seek. John Hagel and John Seeley-Brown refer to this ability as dynamic specialisation.[21] Having agility is a prerequisite to acting dynamically.

Agile organisations have rhythm. They sense order within chaos, make decisions, and take action with quick, easy grace. They balance risk and reward. They're process driven organisations that get the right information to the right person at the right time to deliver true business value. They are leaders in innovation.

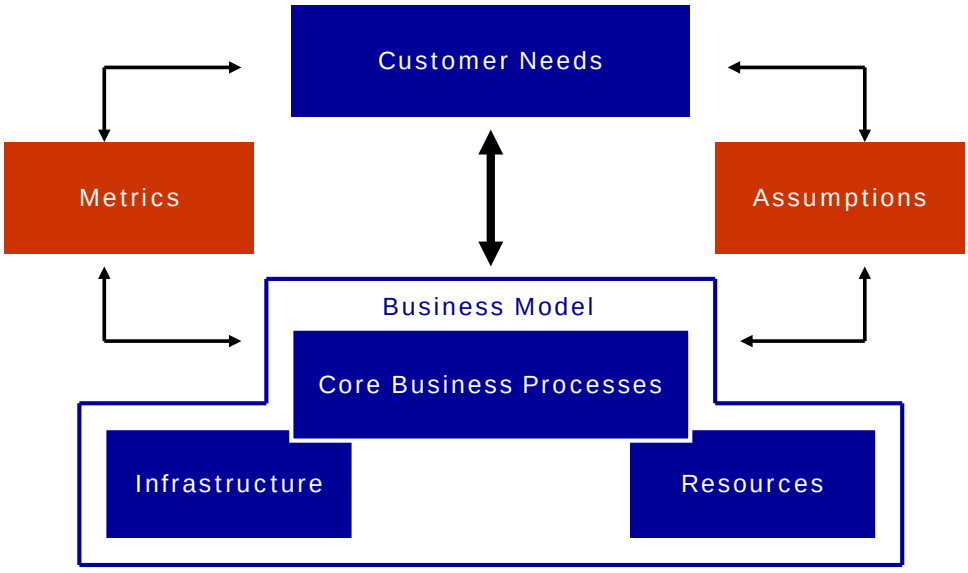
As noted by C. K. Prahalad and Venkat Ramaswamy, professors at the University of Michigan, "This process is distinctly different from traditional forms of customer focus. It isn't about the company learning more about customers so it can target them better, but about thinking of customers as equal problem solvers. Furthermore, it's about recognising that there's customer heterogeneity, and no two experiences are likely the same."[22]

Business Model Design

A business model describes what an organisation does and how it makes money. Agile organisations view their business models as a set of core business processes supported by a flexible infrastructure, some of which is capability controlled by the firm, some of which is controlled by network members. Unlike a traditional hierarchical and siloed model, this more

dynamic model requires the agility – speed, nimbleness, and grace – to assemble and reassemble capabilities and resources as required to take advantage of opportunities and mitigate risks.

Thus when assembling a business model, start with the customer needs. (See Figure 5 – Business Model Design Framework). The organisation then assembles its offering to the customer – the goods, services, information, and other currencies, including the right level of co-creation that it believes best satisfies that set of customer needs. For each set of customer needs and corresponding offer, the business model defines a set of core processes for delivering that offer and then builds the infrastructure and obtains the resources necessary to operate that business model. The infrastructure is the collaborative network, physical assets, and enabling technologies that power the core processes. The resources consist of the money, time, energy, and other currencies the network members make available to build the network and engage in the value creation process with the customer.



Business Model Design Framework
Figure 5

It is absolutely critical that all three core processes be designed from the consumer's perspective. When developing a business model the organisation should think about what it does in terms of three core business processes:

1. **Customer Acquisition and Retention Process** – How the organisation gets and keeps its customers
2. **Product and Service Innovation Process** – How the organisation continuously innovates the goods, services, and information that will satisfy its customers

3. **Customer Fulfilment and Service Process** – How the organisation delivers to and supports customers

As the organisation defines its core processes, it identifies the infrastructure – the collaborative network(s), physical assets, and enabling technologies it needs to operate those processes. The factors and dimensions of the Collaborative Network Design Model (Figure 7) guide the organisation in developing its networks. It uses those factors to help structure relationships with member firms and refine its assumptions about the operation of the core processes.

One of the distinct advantages of the collaborative network is the richness of information the enabling technologies can provide because of the choreographer's relationship with, and understanding of, the customer. Equally important is its relationship with, and understanding of, the member firms. By facilitating the flow of information, the choreographer organisation assumes the role of the "central nervous system" of the community. The organisation isn't so much a repository for information as it is a distributor of information. As a result, all members of the collaborative network can make better decisions and make them faster. In the collaborative network, customers, employees, and member firms must have access to exactly the information they need, when they need it.

Key to this approach to business model innovation is the set of assumptions on which the model is based, including how the collaborative network is designed. As the network engages with the customer, it uses information purposefully generated to produce metrics that let it assess which of its assumptions are valid and which need to iterate. An organisation achieves a competitive advantage through its business model and, therefore, needs to introduce innovative business model after innovative business model if it hopes to achieve and maintain success. As noted in the *Sloan Management Review,* "The punishing thing about innovation, however, is that the contest never ends. Create a new product, and other companies come flooding in. Parry one threat, and up pops another attacker, hungrily eyeing your core business. Success requires being able to go beyond isolated wins to develop deep-capabilities that allow companies to disarm disruptive threats and seize new growth opportunities repeatedly. It requires the ability to churn out successful growth businesses year after year, over and over again."[23]

The business model of any and every organisation is emerging as a combination of capabilities – some tightly bound and some loosely aligned – and it integrates these capabilities to produce goods and services for its customers. The enablement of customers and competitors by the technologies and globalisation of the flat world have mandated that organisations design their businesses as collaborative networks and that they have the collaborative ability and agility to participate as network members in networks choreographed by their customers and partners.

"Eventually competitors catch up, forcing the pioneers to do even better to keep their edge. Low-cost carrier Southwest Airlines Co. is making big changes to fend off rivals that have copied its efficient operating model. Inventory-control methods at Wal-Mart Stores Inc. are being mimicked around the world, and Google Inc. is updating its search engine to keep users loyal."

Cecilie Rohwedder and Keith Johnson, *Wall Street Journal*

Consequently, it is the knowledge of the innovation process through which that stream of business models flows and the ability to translate that knowledge into effective collaboration that is the only sustainable competitive advantage. Monopolies, patents, and other market protections and advantages all eventually end. The slower the introduction of technology, the longer competitive advantages last. But in a time of rapid technological innovation and flattening of the business landscape such as our own, it quickly becomes clear that the only truly lasting competitive advantage is the ability to implement the iterative process of developing agile, innovative organisations.

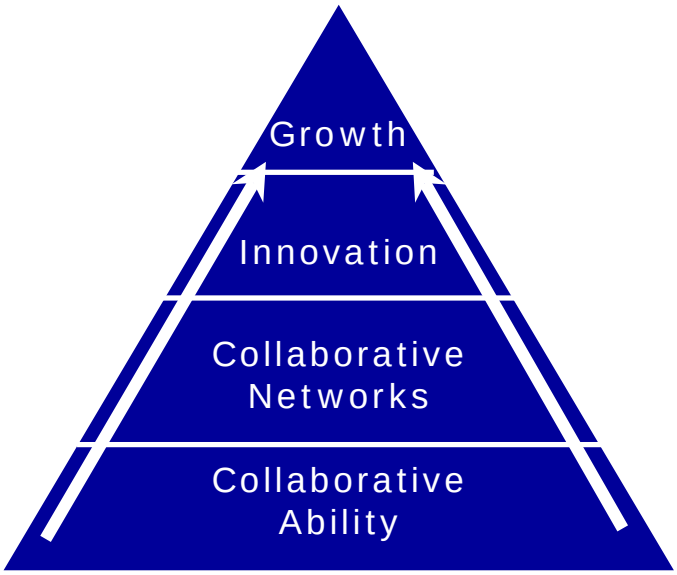
Public Policy Implications

As we have discussed, the convergence of the flat world, the need for growth, and the inability of internal R&D to produce the innovations necessary for that growth require collaborative working. Today, all innovation must be open to a greater or lesser degree. The innovation in innovation is that it is no longer just the province of scientists and engineers. Innovation is occurring in the very definition of an organisation, its boundaries, and how it interacts with its stakeholders and communities. Without a doubt innovation occurs in collaborative networks and the organisation must have the ability to collaborate. It is quite simple: If an organisation lacks the ability to collaborate, it lacks the ability to innovate and grow (see Figure 6 – The Key to Innovation and Growth).

"A common frustration in the translation of collaborative mandates into organisational goals and subsequently measurable tasks is the requirement for such tasks to be measured through existing systems."

Mairi MacRae

Scottish Development International



The Key to Innovation and Growth
Figure 6

As a consequence of this fundamental shift in defining innovation, traditional means of incentivising and measuring innovation are inadequate. Incentives currently employed by government seek to promote classically defined R&D spending. Inputs, such as money, patents, and scientists, constitute the bulk of measurement discipline. While important, these are inputs into the scientific innovation process and do not provide evidence of actual innovation that can grow economies, nor are they reliable predictors of innovation.

It is important to acknowledge that business in general is just beginning to understand and make use of collaborative networks. We're still in the early days of acknowledging the fundamental transformation in organisation structures and ways of working. There are many barriers that

get in the way of such change. Most are organisational and can't be solved through public policy initiatives. A new tax credit won't overcome a closed corporate culture. A science park won't overcome a lack of collaborative ability or negate the three myths of collaboration.

Innovating through collaborative networks is not a management concept du jour. It isn't another change initiative that can be ignored until it goes away. Only a collaborative network has the capital, capacity, and expertise required to take on the major challenges of our time – be it reducing the energy wasted in the chip manufacturing process or stemming the spread of avian flu:

"I am convinced that the art of collaboration will be the most distinguishing leadership characteristic of the 21st century. Universities need to teach it. Government policies and regulations need to facilitate it."

Nick Donofrio
Executive Vice President
Innovation and Technology, IBM

- The SiLKnet Alliance[24] – Once Dow found out the hard way that it could not introduce a disruptive technology into the semi-conductor chip manufacturing environment on its own, it created an alliance of 26 of the material, tool and capital equipment manufacturers whose products would need to work seamlessly together if Dow's technology were to be accepted by the chip manufacturers, such as IBM, Toshiba, TSMC, and Intel. Many of these 26 companies competed with one another. Many of them competed with Dow. The technology ultimately failed when IBM chose not to adopt it. Nevertheless, the collaborative network that was the SiLKnet Alliance was a huge success for the network members. Each of them found tremendous value in their participation in the alliance. Dow benefited hugely as well in developing its understanding of how to position and market its material. The industry as a whole accelerated its development of materials that could reduce energy leakage. However, industry adoption of Dow's material and thus the financial rewards were not forthcoming, so Dow ultimately abandoned the business and disbanded the Alliance.

  Interestingly enough, at about the time that SiLKnet disbanded, IBM started to form the alliance discussed on page 33 in the Innovation is Collaborative section. The alliance draws directly upon many of the strengths of SiLKnet.

- Roche Tamiflu Alliance[25] – As the world began to fear an avian flu pandemic in 2005, Swiss based pharmaceutical giant Roche attempted to ramp up its manufacture of Tamiflu, a medicine traditionally used to fight seasonal influenza. According to the World Health Organisation (WHO), government stockpiling of antivirals, especially Tamiflu, in advance of a pandemic is presently the only way to ensure adequate supply. Senior management at Roche quickly realised that it didn't have the capacity to

produce the quantity of drug a pandemic would require. To overcome these constraints, Roche assembled a collaborative network of manufacturing partners around the world to participate in all aspects of the production process. Additionally, so that patent issues wouldn't be a barrier, they voluntarily licensed their intellectual property to generic drug companies in India and China, and entered into a technology transfer agreement with a manufacturer in South Africa. Certain of these companies were able to make the drug available within a few months of getting the go-ahead from Roche. Due to the capacity of the collaborative network, which includes 19 external manufacturing partners in nine countries, in excess of 400 million treatments of Tamiflu can be produced annually.

Roche has also engaged in collaborative research with universities, health institutes, and others to determine optimal use of Tamiflu. It has donated 5 million treatments to WHO for emergency use in outbreaks and for regional stockpiles. It also established special pricing for governments, especially for low income countries. As a result, as outbreaks of the potentially deadly H5N1 influenza virus occurred during 2006, the medicines were in place and available to make a difference for patients.

Often, networks must fight against traditional business units to get resources and executive attention. The lack of understanding of collaboration means that despite the growing popularity of the concept of collaborative innovation, and recognition that collaboration generally produces better science, there is a general disconnect between innovation and collaboration. Efforts to improve innovation are often compartmentalised into such categories as managing distributed teams and bridging cultural divides. Until such time as a holistic approach to innovating through collaborative networks takes hold, entrenched interests and traditional fiefdoms will resist the innovation in how work is done.

Thus it does not surprise that government policy and measures remain focused on the inputs to scientific innovation despite stated policy to take a "broader approach to business innovation in Scotland that moves beyond viewing innovation as the domain of science and technology alone and recognises the importance of working with customers, suppliers and competitors to stimulate innovation." For example, a few of the actions the government intends to demonstrate a "clear focus on strengthening the link between Scotland's research base and business innovation and addressing low levels of business R&D" include:[26]

- Recognise, reflect and promote the key role of Scotland's universities and colleges as world-class assets in further developing our science base, other key sectors and the wider economy
- Develop a new science strategy for Scotland, outlining how science will underpin Scotland's success as a nation through developing knowledge exchange between academia and business, increasing the flow of overseas investment into Scotland's R&D base and developing the science base
- Create an annual Saltire Prize, promoting, incentivising and providing funding to the leading areas of innovation in Scotland.

Science is important, but collaboration is essential for turning invention into innovation. The government deserves credit for recognising that collaboration plays an increasing role in scientific innovation, as evidenced by these actions included in its economic development strategy:

- Provide clear incentives through the Scottish Funding Council and other agencies to encourage colleges, universities and business to engage collaboratively in the exchange of knowledge and expertise to drive greater innovation in the economy
- Utilise the potential of mechanisms such as Intermediary Technology Institutes to increase the connections between Scotland's scientific strengths and global market opportunities, while ensuring the involvement of Scotland-based firms

For Scotland's economy to proactively benefit from the promise of the flat world requires that as an economy it has the same mindset, skillset, and toolset that is the foundation of a collaborative ability. Thus in addition to supporting the development of Scotland's science and technology base, it is essential that the government support the growth of collaborative ability. Just as increased spending on R&D by business is not producing the returns businesses seek, the government will not get the economic benefits it seeks by focusing only on the innovation inputs. Building the science base through traditional tax incentives, reducing bureaucracy, supporting intellectual property law reform, and such efforts that are already underway should continue. Rather than only looking to these levers to produce innovation, the government must create the capacity for innovation. That is, it must support growing the ability to collaborate.

The following provides some suggestions for ways in which both Scottish Enterprise, specifically, and the government more generally can help develop the mindset, skillset, and toolset of collaborative ability for the nation's economy.

Mindset

The Scottish government with Scottish Enterprise as its implementation arm can take the lead and help both Scottish businesses and global businesses with a presence in Scotland understand and embrace the flat world and the need for collaboration. It must help broaden the understanding of what constitutes innovation and the need to innovate organisation structures and management processes, as well as products and services. Changing the mindset and opening it to new ways of thinking about innovation and business models does not happen overnight. As Drucker stated in 2000, the transition will take 25 years. We are about one-third of the way into that time-frame and the pace of change is accelerating. However, there is a tremendous need for awareness and education amongst business leaders and policy makers alike.

Scottish Enterprise can take a leading role in helping develop this new mindset by:

- Ensuring that its leadership and staff fully understand the implications of this changing scope of innovation and the need for collaborative ability
- Developing its ability to model collaborative innovation by partnering with others in the effort to educate and raise awareness
- Taking a network perspective in its delivery of services and facilitating connections among Scottish sources of technology and businesses both within Scotland and globally
- Finding and partnering with evangelists for this way of thinking, such as the National Endowment for Technology, Science, and the Arts (NETSA)
- Promoting an understanding of entrepreneurial thinking beginning with young people. The belief that “you can’t get it right the first time” is essential to both innovation and collaboration

Changing the mindset requires constant effort, presenting examples of successful collaborative networks, and rallying more and more people and their currencies around the effort. It is very hard work, it is transformative, and the results can be extraordinary.

Skillset

The skills of collaboration are best learned through experience. Scottish Enterprise can help diffuse these skills over time throughout the economy in the services it provides to businesses. Of course, this assumes that the staff has an appropriate understanding of collaborative networks and can

offer credible and relevant expertise to clients. Operationally, Scottish Enterprise can:

- Hold forums and workshops to help businesses learn collaborative skills and give them opportunities to meet potential partners
- Incorporate partnering more directly into some of the investments it makes
- Capitalise upon the learning and lessons of the TMRC and promote Scotland's expertise in structuring innovative relationships between the private and public sectors
- Encourage and expand the learning journeys that Scottish Development International offers and promote ways to develop understanding of other business cultures

Clearly, in addition to providing educational opportunities for adults to develop their skills, it is essential that Scotland's educational system promote science and mathematics and that young people are encouraged to aspire to more technical professions. At the same time, they should be encouraged to learn other languages and about other cultures, travel abroad and appreciate diversity. Leveraging diversity of all flavours is essential to working across geographic, cultural, and organisational boundaries. Developing the skills to work in a global marketplace is a requirement for young people to achieve economic success. Scotland's digital media industry can assist by developing games and interactive experiences that engage young people in the broader world.

Toolset

One of the most important issues in innovation policy and support of innovation is that the measures of innovation are sorely lacking. As stated previously, what are measured today are largely inputs. What have to be defined are measures that are predictive of outputs and measures of the outputs as well. What NESTA refers to as the "hidden innovation" often represents the innovation that matters – the innovation that most directly contributes to real practice and performance of sectors and economies.[27] And while the concept of hidden innovation refers to the adoption and use of a specific invention, even this does not cover the true innovation that is occurring as collaborative networks increasingly become the form of organisation necessary for innovation. Thus, an essential role for Scottish Enterprise is to help the Scottish government and businesses define a new language for innovation and a new set of measurements that are easily understood and can be widely adopted.

This provides an opportunity for Scottish Enterprise to assemble a collaborative network of businesses, academia, and policy makers to tackle an issue that is in fact holding back innovation from occurring. There is an old adage, "if it can't be measured, it can't be managed." Right now, true innovation is not being measured. One can also argue

that the traditional measures of economic activity don't adequately capture the value created by collaborative work, especially that which takes place across national boundaries. A chief characteristic of innovating through collaborative networks is that they dynamically reshape boundaries to create value, yet most measures of economic activity are bound by geography.

Tying value to place also occurs within efforts to increase foreign direct investment. The targets of most inward development efforts are tied to jobs located in a specific place, or the construction of physical assets such as a research lab. It has only been within the past year that UK guidelines have allowed university partnerships to be counted as foreign direct investment. If the goals and objectives of development agencies are rooted in traditional definitions of innovation and growth, their employees are not incented to seek out innovation in foreign direct investments.

One of the barriers to adopting collaborative ways of working is that collaboration doesn't show up in financial statements. As a means to an end and not an objective, managers find it quite challenging to show whether or not they get better outcomes through collaboration. Measures of collaborative capability, inclusive of a broader definition of valuable currencies, are being developed by industry, as are process indicators. The strategic alliance profession is leading this endeavour, with special success seen in the pharmaceutical collaborative networks operated in the US by Boehringer Ingelheim Pharmaceuticals and Astellas Pharmaceuticals.

Some of the other elements of the toolset to support the development of collaborative networks include:

- **Intellectual property law** – Current law supports traditional closed innovation and often prevents the transparency needed to engage collaboratively. The lack of protection in certain Asian countries can discourage businesses from engaging there. Work needs to be done to ensure intellectual property owners can benefit from their invention, while users can adopt and participate in the dispersion of innovation and value creation

- **Trade policy** – The negative impacts of the flat world are perhaps best reflected in schizophrenic trade policies that seek to protect certain industries while at the same time providing openings for other industries

- **Competition** – Current policy assumes that when companies from the same industry get together, the consumer suffers. While that can be true, innovation needs

collaboration and businesses need the ability to align in the best interest of customers

- **Liability** – Laws defining liability were written within the framework of industrial age value creation. New organisation structures may require redefining where one organisation's liability ends and another's begins

Scottish Enterprise already has at its disposal a unique and important tool to encourage collaborative networks and that is the collaborative network of globalscots. This unique resource which cannot be replicated should be utilised to its fullest to provide opportunities to Scottish companies and to bring in the learning about collaboration that is currently occurring in leading companies around the world. Innovation and growth are on the agenda of senior leadership in every company and industry sector and many of the globalscots are in positions where they are actively engaged in collaborative innovation. The globalscot network provides a competitive advantage to Scotland, if properly utilised.

Scottish Enterprise as Choreographer

The government's innovation policy must support businesses in adopting a broader view of innovation and facilitating the transformation to collaborative networks as the form of organisation in which innovation occurs. This requires deep engagement with businesses and academia, as well as with other economic development agencies. The journey to collaborative networks is one of innovation and experimentation, thus learning occurs continuously and is pervasive. If Scottish Enterprise is to lead the way for the Scottish economy to realise the promise of the flat world, it must lead by example. It must choreograph the networks that meet the needs of its customers, the entities that will continue to constitute the legal form of organisation, if no longer the economic and structural form. In the process, Scottish Enterprise too will develop its collaborative ability and better leverage the relationship currencies and financial resources at its disposal. It will design its core processes around this customer and have in place the partners, physical assets, and enabling technologies required to create the innovations the customer seeks.

As choreographer of economic development within Scotland, Scottish Enterprise can take a leading role in guiding the government through a review of its innovation policies from the perspective of the innovations in business and organisation structure and design required to achieve desired levels of scientific and technical innovation. As discussed, some policies relative to intellectual property, taxes, and competitive issues may specifically aid the traditional hierarchical view of the organisation and inhibit collaboration. Some of the policies that inhibit collaborative innovation may not be considered innovation policy at all. Education,

immigration, even how government departments are permitted to work together, can impact collaboration.

Scotland and Scottish Enterprise have well-deserved reputations for being innovative. Actively pursing collaborative networks as the form of organisation required for innovation and growth can keep that reputation alive and realise the promise of the flat world for Scotland's businesses and citizens.

Concluding Comments

Without a doubt, collaboration is the most important capability for any organisation to possess today. Yet few executives believe their organisations have it, or that they personally have a good understanding of how to create value in networks. By and large they generally understand that they must embrace collaborative networks, they just don't know how. Thus, at present there is disconnect between what is being said and the reality of what is happening in many organisations. There is no doubt however, that we are in a time of profound transformation in ways of working, creating value, and structuring organisations.

To create a collaborative ability within Scotland, Scottish Enterprise should continue to explore the implications of the flat world and put into place its own experiments to speed learning and create value. A few avenues of inquiry that should be pursued next include:

- How can Scottish Enterprise better leverage its global network to accelerate learning?
- What companies within Scotland are the most advanced in developing their own collaborative networks?
- What initiatives are occurring in other economic development agencies that Scottish Enterprise can participate in to better understand the implications of collaborative networks as the organisation?
- What initiatives are occurring within other parts of the Scottish and UK governments related to the topic that can be joined?
- How is the education system preparing students for this economic reality?

There are more questions than answers at this point in time, but the journey has begun. The connectedness and interdependence of the global economy cannot be denied. The ultimate innovation is using that connectedness and interdependence to create health and wealth for all citizens.

About The Rhythm of Business

The Rhythm of Business specialises in collaborative business – the organisations, business models, management and ways of working to innovate and grow through collaboration. For more than 25 years, principals of the firm have built collaborative business models, developed and operated alliances and supplier networks, and consulted within both corporate and civic sectors on building and using collaborative relationships to achieve strategic and financial objectives. Through comprehensive management frameworks, skill development, and measurement and analysis tools, we enable individuals and organisations to innovate and grow through collaboration.

Co-founders Jeffrey Shuman and Janice Twombly have co-authored numerous books, articles, and white papers and regularly speak at a variety of venues around the world on the ongoing transformation of organisation structures to collaborative networks. Their methodologies inform Shuman's popular MBA courses on Managing Collaborative Relationships and Entrepreneurial Thinking at Bentley College where he is professor of management.

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