The development and significance of the concept of the business ecosystem

Network organisations

Michael Porter of Harvard University suggested that an organisation can gain a competitive advantage by the way it configures its activities to create value to the customer. Focusing on the core competences enables organisations to determine whether more value can be added to the customer by outsourcing certain activities to specialist firms. One of the main benefits is that a specialist firm may be able to perform the activity more efficiently and effectively due to economies of scale and expertise achieved via the learning curve from the specialisation. The developments in technology allowed services to be outsourced more widely, often on a global basis. The most common examples are in software development and call centres.

This increased practice of outsourcing and collaborative working led to the development of **network organisations** in which several organisations contributed to the provision of the product or service to the end customer. Essentially a network organisation is a collection of autonomous organisations or units that behave as if they are a single entity, using social mechanisms for coordination and control. Three types of network organisation have been described by various authors which are typically seen as:

(1) **internal**, where a large organisation has separate business units, some of which may be separate subsidiary legal entities, that act together;

(2) **stable**, where a central organisation outsources some of the work to other organisations, and,

(3) **dynamic**, where a central organisation, which is known as a network integrator and may do very little except manage the network, outsources heavily from other organisations.

The advantages to be gained include:

- **Lower transaction costs** between the various organisations as they share a common goal and can organise themselves to reduce the costs of transferring and combining goods and services. This is also facilitated by the frequency of transactions between the network organisations.
- **Demand uncertainty** is more readily coped with. For example, a film is made by bringing together a network of different parties for a major project, each of which brings their own specific skill set. Organisations and parties within the industry accept the fact that once the project is complete, they move on to look for the next opportunity in which to apply their particularly skill set to a common goal.
- **Customisation and asset specificity**. In some industries the requirements may be quite wide ranging in that very few jobs are the same and therefore being able to call on specialist organisations to provide products and services customised to an individual customer allows this to be achieved without the need to retain the capability in-house. This provides a high degree of flexibility in product and service provision. This is prevalent

in industries where there is central point of contact with the customer, such as a wedding planner, who is then able to pull together the resources to provide the custom product or service for each customer. This also means that assets that are used for a specific purpose do not have to be owned by many companies, but that one can provide the service to many.

- **Task complexity.** Where the task is highly complex and to maintain the capability in-house would be very costly it is beneficial to operate on a network basis.

Emergence of the term ecosystem

The emergence of the term business ecosystem is beginning to replace the network organisation. Authors such as Greg Satell (author of Mapping Innovation: A Playbook for Navigating a Disruptive Age) suggest that if you can create an organisation chart of a networked organisation it is not truly networked. The definition of a networked organisation is moving towards describing networks where the relationship is much more informal than formal. It is suggested that true networks would form naturally, and it is the common goals that bind the members together rather than a formal structure. Imagine the wedding planner who has a book of contacts that they can call on to provide the perfect wedding for their client. Now scale this up to larger projects and you have an international organisation that can pull together resources and skills as and when required.

Ecosystems

Organisations are no longer seen as an entity that does everything, but are now viewed as bundles of discrete parts, each of which undertakes its own function, and combine to add value to the end customer. This is the essence of a networked organisation, but these are now frequently being referred to as operating within an organisational ecosystem.

The term ecosystem was originally used by the British botanist Arthur Tansley in the 1930s to refer to a community of living organisms that interacted with each other and their particular environment. In this case air, water, mineral soil, and other natural elements. The term was then borrowed and applied to a business context by James Moore who wrote in a Harvard Business Review article in 1993, titled, Predators and Prey: A new ecology of competition:

> 'Successful businesses are those that evolve rapidly and effectively. Yet innovative businesses can't evolve in a vacuum. They must attract resources of all sorts, drawing in capital, partners, suppliers, and customers to create cooperative networks …….. I suggest that a company be viewed not as a member of a single industry but as part of a business ecosystem that crosses a variety of industries. In a business ecosystem, companies co-evolve capabilities around a new innovation: They work cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations.'
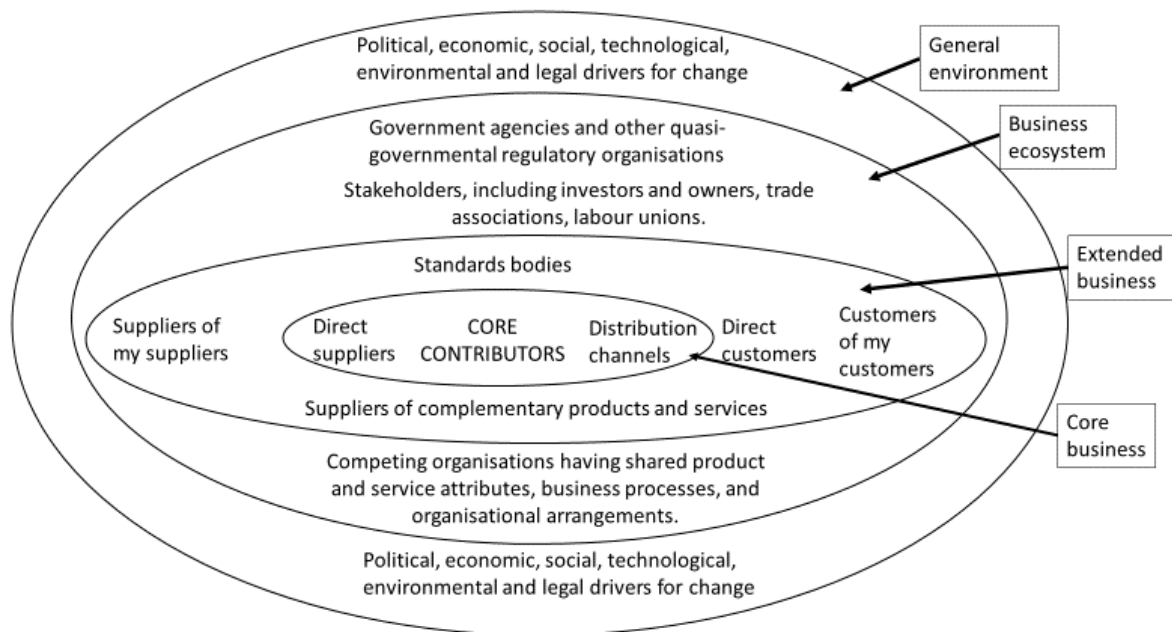
Figure 1 - Adapted from 'The death of competition – Leadership and strategy in the age of business ecosystems', by James F. Moore.

The diagram in figure 1 indicates where the business ecosystem fits into the environmental analysis. Note that the general environment, which is represented by a PESTEL style analysis, sits on the outer rim, and the ecosystem then contains the relevant stakeholders. This links closely to stakeholder analysis in that consideration of the ecosystem encourages the organisation to think of the wider impact that certain stakeholder groups have on their organisation and conversely the impact that a strategic choice has on various stakeholder groups. This ensures that the strategic thinking includes the wider stakeholders and not just the immediate supply chain.

It could be argued that there has always been the need for organisations to work together through the supply chain, as a delay anywhere in the system from provision of raw materials, production, distribution, retailers, finance and customer service would impact adversely on the customer experience. The concept of the ecosystem, however, can extend beyond the traditional supply chain and in some cases act as a disrupter of the traditional supply chain via disintermediation, i.e., cutting out the middleman, as in the case of eBay or Airbnb.

The evolution of the ecosystem structure in which organisations operate has been facilitated by factors such as: developments in technology; the Internet; increasing competition; an increasing awareness of the need to be socially responsible and the impact of organisational activity on communities and society in general; the rapidly increasing pace of change and innovation; and the increasing sophistication of customer demands.

The definition is captured by Deloitte Consulting LLP who suggest that 'Ecosystems are dynamic and co-evolving communities of diverse actors who create and capture new value through increasingly sophisticated models of both collaboration and competition.' Ecosystems are also sometimes referred as value webs, as they represent a web of loosely connected organisations that work towards creating value.

There are distinct advantages to developing and being part of an organisational ecosystem. They include:

- The ability to develop new collaborations to address rising social and environmental challenges;
- They present opportunities to harness creativity and innovation to lower costs of production and service provisions or to enable members to reach new customers;
- They enable an acceleration of the learning process via collaborations, sharing of knowledge, skills and expertise;
- They facilitate the ways to address fundamental human needs and desires.

Examples of how technology and creativity have provided new ways to satisfy human needs that are visible to the consumer is the emergence of companies such as Uber, Airbnb, and JustEat. These companies have changed the business model in their industries. They use technology to act as an intermediary between companies in the case of Just Eat or Uber, or in the case of Airbnb, between end users so that they replace the traditional intermediary, such as the travel agent, altogether.

In Business-2-Business (B2B) scenarios there are many stakeholders involved, of which some may be unseen by the end consumer. They include suppliers, distributors, customers, competitors, government agencies and regulatory bodies, finance providers, local communities, consumer groups and pressure groups, and so on. There is often a controlling company that occupies a key role in the ecosystem. For example, Microsoft's Windows operating system and tools or Wal-Mart's procurement system that provide a stable and predictable set of common standards. Over time the members of the ecosystem co-evolve so that they tend to align themselves with the direction set by one or more of the control companies. The control companies may change over time but the leadership function they perform is valued by the community members as it allows them to align their investment decisions to work towards a shared vision and goals.

Ecosystems may go through periods of internal turbulence, as in the case of Uber. Drivers who have signed up to Uber began to complain that they were not treated fairly, the competitors from established taxi operators were suggesting that the competition was unfair, and regulators have been struggling to find ways to regulate the activities. It is often the case that the rules and regulations do not always cover the new business models and the regulations governing the operation of the markets lag behind. Indeed, it is one of the ways in which new business models can gain an advantage over the competition. The so called 'gig economy' which is dominated by the use of zero hours contract, under which you

only get paid for the hours you work and when the company wants you, has caused regulators to examine the equality and fairness of such contracts, with some pressure groups arguing that they are exploiting vulnerable sections of the workforce and are ignoring workers' rights.

Internal and external ecosystems

Despite the concept of collaboration and competition, and the benefit for society and sustainability, ecosystems can be established that seek to create a barrier to entry and to exclude others from participating. This builds on the concept that ecosystems encourage collaboration, co-operation, competition and what some described as co-opetition. There may be an opportunity to gain competitive advantage by mutual exchange, a case of you scratch my back and I'll scratch yours. For example, a pharmaceutical company financing innovative technology at a small bio-technology firm, on the basis that it gains access to the research findings first. These exchanges of resources are referred to as closed loop ecosystems and seek to limit the number of participants.

Wider external ecosystems are often developed from closed loop systems due to the benefits that could be gained from wider participation. For example, a supermarket chain may work closely with a packaging supplier, designer, and supplier to develop a more sustainable way of packaging food so that both the packaging company and the supermarket gain a first mover competitive advantage in the marketplace. There are, however, arguments to suggest that as the supermarket industry sector operates on low margins, and is highly price sensitive, that it is too expensive for one company to go it alone. There is the viewpoint that recyclable packaging may be more costly, and therefore eliminating the problem of non-recyclable packaging, such as single use plastic, will only be solved by the industry working together. This may also be aided by government regulation and consumer groups; therefore, the benefits of an enhanced ecosystem encourage more collaboration between a wider group of participants. The acceptance of the consumers also must be encouraged. Packaging protects, preserves, transports, informs, and sells the products. If less, or no packaging is used, there is a trade-off between these elements and the packaging industry argues that consumers must accept that trade-offs may be necessary if recyclable packaging is used. The challenge for the ecosystem is to work together to achieve the overall goal.

Recognising the ecosystem of which you are part or the development of new ecosystems

Mary Townsend, founder of Partnering Resources relates a story of a company that noticed in the early days of office technology many organisations had a range of printers from different manufacturers and that they did not always talk to each other very effectively. The company developed a software package that integrated the printers together solving many of the 'handshaking' problems that organisations experienced in getting different systems to talk to each other. The company did not work closely with the printer companies but went solo to develop the product. However, it did not take long before printer companies worked together and began to incorporate integration software into their own products,

which made the software product of the original provider obsolete. It would have been advantageous for the original company to have recognised the potential ecosystem and worked closely with the printer companies to develop the integrated product and therefore retained a viable interest in the product. Mary Townsend's point is to recognise when there are potential benefits of collaboration that will benefit all parties concerned.

The key element that the original organisation missed was identifying the relevant stakeholders in their ecosystem and assessing their degree of influence and power. Rather than collaborate with the original innovator, the printer companies collaborated to eliminate the original provider. As with biological ecosystems it is often the survival of the fittest.

Identifying stakeholders

It is important to identify the different stakeholders and their vested interests. Ideally the most effective and ultimate aim of an ecosystem, or value web, is to work towards common goals. However, note that the definitions suggest that organisations collaborate **and** compete within ecosystems. New innovations and progress are often made through competition, and one value web could compete with another value web. Indeed, some organisation may be members of more than one value web in what amounts to overlapping ecosystems creating a much larger ecosystem. This concept can become complex as the formal and informal relationship between organisations ebb and flow and change over time.

In creating the ecosystem there may be different levels inhabited by different stakeholders who have different levels of interest and influence. Indeed, each organisation is said to have its own ecosystem, but the power and influence of certain stakeholders could be expressed differently depending on its relationship with other organisations. For example, Wal-Mart or Amazon are powerful players in their respective ecosystems, but a small business that sells goods to Wal-Mart or via Amazon would see the relationship differently and have less influence or power. However, it is possible to buy products that Wal-Mart sell from Amazon, so they compete. Amazon is also branching into sports and entertainment provision, and so is a member of another ecosystem where they currently may not have as much power and influence. It is possible to see both the complexity and the power of the concept for members of a management team in developing strategy as it provides a fresh way of thinking about business relationships, the business model, what markets you compete in, and who you compete against.

The IT industry represents some of the early examples of ecosystems development. If you develop an operating system such as Android, and Apps are developed by other parties that use the operating system, you need to ensure that as the Android system develops everyone in the ecosystem is considered, thus creating the need to collaborate and share information. Open source software such as Linux is another example of a product produced via collaboration of many partners. And, of course, these products are developed by people situated anywhere in the world. The nature of the product means that organisations, particularly software companies, can recruit the best talent from anywhere as and

when needed. The connectivity, often across different ecosystems, provides a degree of flexibility and responsiveness not previously enjoyed by organisations.

The Internet has also enabled the development of new products that offer connectivity. It is now possible to remotely control physical devices in the home from your mobile phone, such as changing the heating controls, recording TV shows (which you can also watch anywhere on your mobile device), manage your bank account, place bets, and many other activities that requires cooperation of the manufactures of devices to conform to industry standards.

Platforms

Ecosystems are often formed on top of a business platform. These platforms are typically created and owned by a single business or entity and are designed to attract a range of participants that work actively to perpetuate the platform's use. An early example is the formation of VISA. Dee Hock had noticed that many banks were attempting to create their own credit card payment systems and investing high levels of resource and marketing effort in doing so. Dee Hock proposed the creation of a common platform which would aid banks in developing and managing credit card payments, which later became VISA, and essentially taking away the burden of each attempting to create their own system. eBay is another example of creating a platform that brings buyers and sellers together, and the use of technology Apps utilising the platform provided by the providers of cellular networks accessed by devices provided by mobile phone companies, is adequately demonstrated by Uber and Airbnb.

There are said to be three types of platform

Aggregate platforms which facilitate transactions, connect users to resources and tend to operate on a hub and spoke model with a controlling entity. These can be platforms that are based on the provision and sharing of information via access to a database, such as stock performance platforms that provide information on performance for investors, or scientific databases that can be accessed by many organisations as part of their research and development. In the case of scientific databases these can often speed up the development of new products to treat diseases and conditions via the sharing of information and data. Within this category there are also marketplace aggregate platforms such as eBay and Apple App store, Android apps on Google Play, put buyers and sellers in contact with each other. Within this category there are also contest platforms where a problem is posed, and solutions are invited with a reward for the best solution.

Social platforms, as the name suggests, enable lots of people to interact. Facebook and Twitter are common examples. These facilitate social interactions and connect individuals to communities.

Mobilisation platforms where the purpose is to change opinion or mobilise people to act together. The recent #MeToo campaign is an example of where Twitter became a mobilisation platform. This illustrates that the typologies are not necessarily discrete but can merge their purpose. On a purely organisational viewpoint, the platforms are the most valuable when they become learning

platforms in which organisations share and build trust relationships that work for the good of society and sustainability in general.

Benefits of ecosystems

By sharing learning and innovation the development and use of ecosystems accelerates growth in economic development. Enabling organisations from around the globe to work together can stimulate economic growth in different countries as well as providing social and environmental benefits. For example, the Global Food Safety Initiative promotes quality and food safety standards. Many of its members compete for markets, but together they share best practices to ensure that standards are kept high and food safety is maintained as a priority that benefits the industry and helps to increase end consumer confidence.

The use of cloud computing and intelligence sharing is bringing positive benefits in the worlds of science and social projects, from monitoring food waste, changes to weather patterns, surveys of changes to the population of certain species beneficial to the human ecosystem, such as bees, birds and other animals, monitoring the incidence of diseases in different countries, and widening the research base for science projects. These illustrate the potential of the new ecosystems to provide opportunities for organisations to tap into projects that have a much wider benefit to society and the sustainability of the planet. For example, mining companies working closely with local communities on reclamation and reinstatement projects, both Nestlé and Coca-Cola worked on projects related to the supply of pure water in different locations where water sanitation was an issue.

Ecosystems are removing many of the boundaries that constrained traditional business models. For example, the increasing use of advanced manufacturing technology, office automation, and more recently artificial intelligence in business applications is changing the way humans and machines interact. This change in human-machine interface has changed the way industries operate and the business models necessary to survive, such they can be viewed as ecosystems, often without the actors consciously setting out to create an ecosystem. Technology has also impacted on the producer-consumer interface, where consumers are now the active participants in the system rather than the passive recipient at the end of the chain.

The case of newspapers

Newspapers were traditionally produced by journalists gathering news, creating copy, which was edited by in-house editors, type set by type setters, and then the typeset plate prepared for printing the paper, which was delivered to retailers, who delivered papers to the consumer. As technology changed journalists could prepare edited copy away from the office and send it to their section editor via e-mail. Photographers took digital photographs that were transmitted electronically from location to the office where the paper was put together before electronic transmission to the printing presses. The giant rolls of paper received from suppliers were bar coded indicating the paper supplier. The individual newspapers

themselves were bar coded, creating a trail that meant it was possible to trace a single newspaper back to the supplier that had provided the paper.

The next set of developments was the advent of the Internet and online newspapers, where everything was in electronic format. And now, much of the news content consumed is via social media. As technology changes it is important that news providers take note of any changes in the mobile technology as updates in the end user technology could mean that content is not accessible in a readily useable format. For example, when mobile phones and tablets became the medium of choice by the consumer, organisations had to make changes to their web pages so that they were optimised for use on a mobile phone and tablet. This requires the collaboration between all those involved in the collection and dissemination of news content and highlights the need to be aware of the impact that changes by one organisation, or group or organisations, makes on the wider ecosystem. This has cost implications for members of the ecosystem that could be intentional or unintentional and recognition of this should be included within the strategic planning process.

The ecosystem behind the news media today is a good illustration of how both competitive and collaborative elements can thrive within the system. The traditional newspapers, while having to embrace the new technology in terms of consumption of their output, would ideally like to have some form of control over how news is presented and consumed. Yet their need to harness the social media content, not just for consumption but also for generating content, as many stories now emerge via social media. Many stories receive their first public airing on platforms such as YouTube, which is a competitor, but in another sense is a collaborative provider of news content. Anyone with a mobile phone now becomes a potential reporter of news. This also brings with it potential problems of fake news and regulation of the industry. But what it does illustrate very clearly is how the business model has changed significantly due to the technology and how humans interact with it.

Risks and regulation

Cybercrime. As business ecosystems develop, largely enabled by technology, it is not without its risks. Cybercrime has grown in recent years making the cybersecurity and data protection industry a key part of any ecosystem. This highlights the societal and ethical impacts of the new business models. The use of artificial intelligence to determine customer preferences, tailor content and promote specific offers, is one example of the difficulty's regulators have in deciding where the new boundaries lie. We have seen the recent accusations of data analysis being used to influence general elections and tamper with the political systems in different countries. The development of new business models breaks down traditional boundaries, but regulators have to work hard to determine where the new boundaries are to be drawn to stop abuse of the system and ultimately to protect society and the consumer.

Old regulation - New business model. One of the difficulties is in determining how the existing regulations apply to the new business models. For example, is Uber operating on the same basis as a traditional taxi company, or not? What rights do drivers have? Are they treated as employees or self-employed? A case that has received some discussion is the media is whether people using Airbnb have the same protection as if they had booked through a traditional travel agent?

Rigid regulations may deprive society of value in the future. One of the dangers is that if regulations are applied rigidly then it could deprive society of value in the future. Proponents of new business models recognise that there needs to be a balanced between the quality of life and innovation. Another case in point is the development of personal monitoring devices for medical conditions where patients wearing a digital device can be monitored remotely. The same could be said of fitness apps, diet apps, and other personal wearer devices where data has been collected and shared with other companies. How safe is your data? And how is it shared? A concern over medical data and medical records is that it could eventually be used by insurance companies to assess risk. Who is in control of the ecosystem and its development or widening participation is a problem of regulation? The same issue arises over the use of big data and the sharing of data across government agencies. For example, the use of mobile phones to track individuals, CCTV footage, vehicle registration plate recognition systems, and more general surveillance systems, are causing debate about how to regulate the use of data. Many of these systems are used by commercial organisations to understand customer habits, and for targeting marketing campaigns.

Impact on jobs, skills and employment. The impact on skills and ultimately jobs and employment has been raised as an issue. As the development of peer-to-peer transactions is much easier to undertake, even across nations, such that organisations are now able to take advantage of the prevalence of factor conditions, and related and supporting industries in relative countries, as indicated by Porter's Diamond, and in effect remove the advantage of being physically located in a country. Some social commentators are worried about the economic effects and governance of such systems that creating value from a range of disparate organisations that the benefits may have long term consequences which governments are not considering.

Self-regulation. There is a move towards promoting self-regulation of the ecosystems. In some cases, this is done by the rules and incentives set by the central organisation operating as the hub. For example, eBay is keen to share the value it creates with the members of its ecosystem - the commission is much less than other retailers, 7 percent (at the time of writing) as opposed to the 30 – 70 percent. They have tools to assist the sellers such as the Seller's Assistant which helps sellers to create a professional looking online presence. These are like the website providers such as GoDaddy and ensures at the very least a certain level of quality and functionality in the website. eBay's buyers and sellers rate one another, which helps to regulate and control the system as well as increasing overall confidence in the system. Those that achieve high ratings achieve PowerSeller status which acts as an incentive and benefits the whole ecosystem. Amazon Services provides its customers with an e-commerce infrastructure for

order-taking and fulfilment, allowing them to focus on their offerings. Other online marketplaces operate similar practices. It is creating the element of transparency through inviting feedback and making them visible that benefits the whole ecosystem and provides a level of control over rogue practices.

In B2B auction sites became popular for the procurement of component parts in manufacturing industries allowing firms to bid for contracts. These sites are governed by certain criteria but essentially allow switches the focus of procurement onto the supplier organisations to actively seek out opportunities to sell their products to manufacturers.

Governance of ecosystems and networks

The development of ecosystems has enabled the development of more complex relationships, which are more informal than being tied to formal contractual terms as in the case of outsourcing. They also allow smaller players to work together to either contribute to larger networks or to compete with the larger organisations via their collective resources.

It has been suggested by some business commentators that the development of ecosystems will reduce the merger and acquisition activity undertaken by organisations as the benefits can be gained without ownership – however, the governance elements need to be considered as to how the network will be managed. They do, however, require several factors to be present in order to operate effectively.

Trust becomes a large factor in the successful operation. As the linkages become more informal than governed by a formal contractual arrangement parties need to build up trust in each other. This is something that develops over time during a relationship and can be enhanced by reputation and status as a partner that always delivers what is promised.

The **goal consensus** can also act as an element of governance as all organisation are working towards a common goal and hence have a vested interest in making the alliances and relationships work for mutual benefit. It is in everybody's interest to collaborate.

The **number and size of organisations** comprising the network can also influence the governance as a few organisations can operate with common consent much more easily than a large number. There may be different levels of commitment required to create and provide the value to the end recipients. The nature of the task can have a similar impact. Complex tasks that require a high level of competency are more difficult to control than simple tasks.

For large complex networks there may be some **guidelines laid down by a key participant or lead-hub organisation** that are agreed by major participants to which minor participants agree to abide when joining the network. The lead-hub organisation may be more powerful due to size, resource capability or legitimacy. The Amazon Services an e-Bay are examples.

In some instances, there may be a **separate entity** that does not actively participate in the ecosystem's creation of value, as such, but oversees the

governance of the network. Large humanitarian projects that constitute an ecosystem are often managed by an organisation that undertakes a purely administrative, and governance role.

Ecosystems and strategy

So how does all this impact on the strategic management process?

There are several things that managers can do to take advantage of the development of ecosystems.

Monitor the environment. It is now more important than ever that senior managers monitor changes in the environment so that they are able, not just to identify the changes from PESTEL, Porter's Five Forces, Porter's Diamond and other models, but that they monitor the development of the relationships between industry members, and how these are changing.

Analysing the stakeholders and identifying the players in the ecosystem, together with the degree of influence and power, to dominate or dictate terms. The relationships with the stakeholders need to be fully understood. In the case of platforms this helps to identify the key players in the network.

Identifying the key competences and ascertaining whether these are best performed by the organisation itself or performed by other organisations in collaboration.

Seek out opportunities. Organisations can seek out opportunities to collaborate to develop new innovations, products and markets. These may come from the environmental analysis or from the strengths and weaknesses. A strength could be developed to create a competitive advantage by collaboration, or a weakness addressed.

Raise awareness. Organisational ecosystems are a relatively new concept in business practices, and raising awareness that organisations are operating within an ecosystem will help managers to identify and monitor changes in the inter-organisational and intra-organisational relationships that exist. Ecosystems are essentially about relationships and managers need to work towards accentuating the positives and minimising the negatives from their relationships with other organisations.

Ecosystem and management accounting

As ecosystems and network organisations require greater cooperation between parties the concept of transfer pricing becomes much more significant. Ensuring that each organisation involved in providing the product or service to the end customer receives fair reward for its contribution requires a full understanding of the costs each organisation incurs. This also has implications for pricing of the product or service. It would not be good for consumers to find there were hidden costs involved within a purchase.

The sharing of the profit margin becomes relevant when goods and services are bundled together. This was very common in the IT hardware and software sector in the early days of this market as many retailers adopted the practice of bundling

the software and hardware together, and in the commercial sector this would often include elements of training and consultancy. This requires cooperation of the various providers and has profit implications for all parties.

Where products and services are used together by the end user changes to one aspect can have implications for other members of the ecosystem. For example, changes to an operating system can affect the functioning of apps and other software. Therefore, there needs to be consideration of the potential implications on other members when changes are made. Design considerations need to be shared which is a key aspect of life cycle costing. Not only within a single organisation, but design choices by one organisation can lock in future costs of other organisations. For example, in the maintenance and repair of products.

Techniques such as target costing have particular significance where a range of organisations are involved in the provision of goods and services, as the understanding of costs and where potential savings can be made requires cooperation and the sharing of cost information between parties. This leads to the concept of open book accounting in which each organisation provides access to the costs and revenues so that the margin can be shared between participating organisations.

We know that techniques such as activity-based costing can lead to a better understanding of what drives costs and strategy models such as the value creation system aid the understanding of where value can be added to the customer. It is helpful if the costing method adopted is consistent throughout the ecosystem so that a full understanding of the cost implication can be gained. Inconsistent methods could lead to inappropriate decisions being made by members of the ecosystem. This becomes significant when considered as part of the transfer pricing model.

We can see therefore, that management accounting can make a significant contribution to the successful operation of the business ecosystem and accountants should not be afraid to highlight the cost implications of operating closely with other organisations. Every action within business has cost implications and accountants within an ecosystem should work together to achieve the best economic benefits for both the organisations involved and the ultimate customer.