## 2.2  Variations on a theme

Innovations vary widely, in scale, nature, degree of novelty and so on – and so do innovating organizations. But at this level of abstraction it is possible to see the same basic process operating in each case. For example, developing a new consumer product will involve picking up signals about potential needs and new technological possibilities, developing a strategic concept, coming up with options and then working those up into new products which can be launched into the marketplace.

In similar fashion deciding to install a new piece of process technology also follows this pattern. Signals about needs – in this case internal ones, such as problems with the current equipment – and new technological means are processed and provide an input to developing a strategic concept. This then requires identifying an existing option, or inventing a new one which must then be developed to such a

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**Box 2.1**    ## Services and innovation management

In 2001 an influential report was presented to the annual conference of a key economic sector laying down the innovation challenge in clear terms*: 'We are at the brink of change of an unprecedented and exponential kind and magnitude . . .We must be willing and able to discard old paradigms and engender and embrace manifest change . . . These required changes include implementing new customer-centric processes and products, cutting costs and improving service through the application of IT and business process re-engineering and putting in place systems and a culture for sustainable innovation.'* Another study, in 2006, reviewed the capability of firms within this sector to deal with innovation and highlighted problems such as:

- *lack of a culture of innovation*
- *lack of strategy for where to focus innovation efforts*
- *innovation is seen to conflict with fee-paying work and is thus not always valued*
- *a formal innovation process does not exist*
- *project management skills are very limited*

At first sight these seem typical of statements made regularly about the importance of innovation in a manufacturing economy and the difficulties individual firms – particularly the smaller and less experienced – face in trying to manage the process. But these are in fact *service* sector examples – the first report was to the US Bar Association, the second the result of a survey of 40 professional law firms in the UK trying to prepare for the big changes likely to arise as a result of the Clementi (2004) review.[1]

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point that it can be implemented, that is launched, by users within the enterprise – effectively a group of internal customers. The same principles of needing to understand user needs and to prepare the marketplace for effective launch will apply as in the case of product innovation.

## Services and innovation

Table 2.1 gives some examples of different types of innovation in services, using the same '4Ps' typology which we introduced in Chapter 1.

Service innovations are often much easier to imitate and the competitive advantages that they offer can quickly be competed away because there are fewer barriers, for example, intellectual property (IP) protection. The pattern of airline innovation on the transatlantic route provides another example – there is a fast pace of innovation but as soon as one airline introduces something like a flat bed, others will quickly emulate it. Arguably the drive to personalization of the service experience will be strong because it is only through such customized experiences that a degree of customer 'lock on' takes place.[2] Certainly the experience of Internet banking and insurance suggests that, despite attempts to customize the experience via sophisticated web technologies there is little customer loyalty and a high rate of churn. However, the lower capital cost of creating and delivering services and their relative simplicity makes co-creation more of an option. Where manufacturing may require sophisticated tools such as computer-aided design and rapid prototyping, services lend themselves to shared experimentation at

| TABLE 2.1 | Examples of incremental and radical innovations in services | |
|---|---|---|
| **Type of innovation** | **Incremental – 'Do better'** | **Radical – 'Do different'** |
| Product – service offering to end users | Modified/improved version of an established service offering, e.g. more customized mortgage or savings 'products', add-on features to basic travel experience (e.g. entertainment system), increased range of features in telecomm service | Radical departure, e.g. online retailing |
| Process – ways of creating and delivering the offering | Lower cost delivery through 'back office' process optimization, waste reduction through lean, six sigma, etc. approaches | Radical shift in process route, e.g. moving from face-to-face contact to online, supermarkets and self-service shopping rather than traditional retailing, hub-and-spoke delivery systems |
| Position – target market and the 'story' told to those segments | Opening up new market segments, e.g. offering specialist insurance products for students | Radical shift in approach, e.g. opening up new travel markets via low-cost travel innovation, shifting healthcare provision to communities |
| Paradigm – underlying business model | Rethinking the underlying model, e.g. migrating from insurance agents and brokers to direct and online systems | Radical shift in mindset, e.g. moving from product-based to service-based manufacturing |

relatively lower cost. There is growing interest in such models involving active users in design of services, for example in the open source movement around software or in the digital entertainment and communication fields where community and social networking sites such as MySpace, Flickr and YouTube have had a major impact.

Services may appear different because they are often less tangible – but the same underlying innovation model applies. The process whereby an insurance or financial services company launches a new product will follow a path of searching for trigger signals, strategic concept, product and market development and launch. What is developed may be less tangible than a new television set, but the underlying structure to the process is the same. We should also recognize that increasingly what we call manufacturing includes a sizable service component with core products being offered together with supporting services – a website, a customer information or helpline, updates.[3,4] Indeed for many complex

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**RESEARCH NOTE**    **The growth of experience innovation**

Chris Voss and colleagues from the London Business School and the Advanced Institute for Management Research have been carrying out extensive research on 'experience innovation'. This focuses on how service businesses in particular are using the creation and delivery of novel and rich experiences to attract and retain customers. A study in 2004 examined 50 organizations in the areas of retail, entertainment and sport, theme parks, destinations and hotels, largely from the UK, Europe and the USA. The research identified a repeated cycle of investment and management, vibrant experiences, customer growth, profitability and reinvestment that drives profit, which can be seen as the experience profit cycle. The research also examined how organizations are turning services into destinations, compelling places where people visit for an extended period of time, engage in multiple activities and want to return to.[5]

Subsequent work looking in more detail at examples in the UK and USA addressed the question of how focusing on the customer experience changes the way services and service delivery processes are designed. It examined the process and content of experience design. The study involved eight case studies of design agencies and consultancies that specialize in experience design and nine case studies of experiential service providers. The research showed that companies often use the customer journey and touchpoints approach to design experiences. Innovation took place in five design areas: physical environment; service employees; service delivery process; fellow customers; and back office support. An important part of the design process is collecting customer insights.[6,7]

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product systems – such as aircraft engines – the overall package is likely to have a life in excess of 30 or 40 years and the service and support component may represent a significant part of the purchase. At the limit such manufacturers are recognizing that their users actually want to buy some service attribute which is embodied in the product – so aero-engine manufacturers are offering 'power by the hour' rather than simply selling engines. The computer giant IBM transformed its fortunes in this way; it began life as a manufacturer of mainframes, became active in the early days of the personal computer (PC), but increasingly saw its business becoming one of providing solutions and services. Following a traumatic period in the 1990s the company has moved much further into service territory and in 2006 sold off its last remaining PC business to the Chinese firm Lenovo.[8] The Marshalls case study illustrates growing via this services model.

It is important in the context of service innovation to remind ourselves of the definition of innovation – 'the successful exploitation of new ideas'. Whilst this involves invention – the creation of some new or different combination of needs and means, there is much more to getting that invention successfully developed and widely adopted. Central to this is the idea of different kinds of knowledge streams being woven together – about possibilities (for example, opened up by new technology) and needs (whether articulated or latent). Countless studies of innovation highlight its nature as an interactive, coupling process – yet much thinking in policy and management practice defaults to linear views of the process and especially to a knowledge-push model.

In the context of service innovation the search for and use of demand-side knowledge is critical – many services are simultaneously created and consumed and end-user understanding and empathy are essential to success. This is not to say that new knowledge – for example, of technological possibilities – is

unimportant but the balance of importance in service innovation may be more in the direction of demand-side knowledge.

One consequence of this different orientation is that much of the language which surrounds discussion of innovation may differ between manufacturing and service contexts. The underlying principles and issues may be the same but the labels may differ. For example, the term 'R&D' used in a manufacturing context conjures images associated with organized research and development. Search involves reviewing established scientific knowledge (in papers, via patent searches, etc.) and identifying interesting lines of enquiry which are followed through via designed experiments in laboratories. Small-scale successes may be further explored in pilot plants or via construction of prototypes and there is a gradual convergence around the final product or process involving an increasing commitment of resources and an increasing involvement of wider skills and knowledge sets. Eventually the new product is launched into the marketplace or the new process adopted and diffused across an internal context.

The Frascati manual (which takes its name from the location in Italy where a 1963 OECD meeting on the topic of innovation took place) is a widely used reference work for developing innovation and technology policy. It defines R&D as 'creative work undertaken on a systematic basis in order to increase the stock of knowledge . . . and the use of this stock of knowledge to devise new applications'.[9] If we look at the challenge of service innovation we can see a similar process taking place – search (albeit with a much stronger demand-side emphasis), experiment and prototyping (which may extend the 'laboratory' concept to pilots and trials with potential end-users) and a gradual scaling up of commitment and activity leading to launch. Service businesses may not have a formal R&D department but they do undertake this kind of activity in order to deliver a stream of innovations. Importantly the knowledge sets with which they work involve a much higher level of user insight and experience.

They are also similar to manufacturing in that much of their innovation-related work is about 'doing what we do but better' – essentially building competitive advantage through a stream of incremental innovations and extensions to original concepts. The distinction made in Frascati between 'routine' – incremental – improvements and R&D also applies in service innovation as the case of incremental innovation at NPI on the website shows.

## The extended enterprise

One of the significant developments in business innovation, driven by globalization and enabling technologies, has been the 'outsourcing' of key business processes – IT, call centre management, human resources administration, etc. Although indicative of a structural shift in the economy it has at its heart the same innovation drivers. Even if companies are being 'hollowed out' the challenges facing the outsourcer and its client remain those of process innovation.[10, 11] The underlying business model of outsourcing is based on being able to do something more efficiently than the client and thereby creating a business margin – but achieving this depends critically on the ability to reengineer and then continuously improve on core business processes. And over time the attractiveness of one outsourcer over another increasingly moves from simply being able to execute outsourced standard operations more efficiently and towards being able to offer – or to co-evolve with a client – new products and services. Companies like IBM have been very active in recent years trying to establish a presence – and an underlying discipline – in the field of 'service science'.[12]

The challenge here becomes one of process innovation within outsourcing agencies – how can they develop their capabilities for carrying out processes more effectively (cheaper, faster, higher quality, etc.), and how can they sustain their ability to continue to innovate along this trajectory?

## What about not for profit?

The distinction between commercial and not-for-profit organizations may also blur when considering innovation. Whilst private-sector firms may compete for the attentions of their markets through offering new things or new ways of delivering them, public-sector and nonprofit organizations use innovation to help them 'compete' against the challenges of, for example, delivering healthcare, education, law and order.[13] They are similarly preoccupied with process innovation (the challenge of using often scarce resources more effectively or becoming faster and more flexible in their response to a diverse environment) and with product innovation – using combinations of new and existing knowledge to deliver new or improved 'product concepts' – such as decentralized healthcare, community policing or micro-credit banking.

Examples of public-sector innovation remind us that this is fertile and challenging ground for developing innovations.[14] But the underlying model is different – by its nature, public-sector innovation is 'contested' amongst a diverse range of stakeholders.[15, 16] Unlike much private-sector innovation, which is driven by ideas of competition and focused decision making, public-sector innovation has different – and often conflicting – drivers and the rewards and incentives may be absent or different. There is also the problem of 'centre/periphery' relationships – often much innovative experimentation takes place close to where services are delivered, but the 'rules of the game' are set (and the purse strings often controlled) at the centre. A major challenge in public-sector innovation is thus enabling diffusion of successful experiments into the mainstream.[17]

## Size matters

Another important influence on the particular ways in which innovation is managed is the size of the organization. Typically smaller organizations possess a range of advantages – such as agility, rapid decision making – but equally limitations such as resource constraints (see Table 2.2). These mean that developing effective innovation management will depend on creating structures and behaviours which play to these – for example, keeping high levels of informality to build on shared vision and rapid decision making but possibly to build network linkages to compensate for resource limitations. The Cerulean case on the website gives a good illustration of this challenge.

We need to be clear that small organizations differ widely. In most economies small firms account for 95% or more of the total business world and within this huge number there is enormous variation, from micro-businesses such as hairdressing and accounting services through to high-technology start-ups. Once again we have to recognize that the generic challenge of innovation can be taken up by businesses as diverse as running a fish and chip shop through to launching a nanotechnology spin-out with millions of pounds in venture capital – but the particular ways in which the process is managed are likely to differ widely. The example of Finnegan's Fish Bar on the website actually looks at the innovation challenges in a fish and chip shop.

For example, small-/medium-sized enterprises (SMEs) often fail to feature in surveys of R&D and other formal indicators of innovative activity. Yet they do engage in innovative activity and carry out research – but this tends to be around process improvement or customer service and often involving tacit rather than formalized knowledge.[18] Much research has been carried out to try and segment the large number of SMEs into particular types of innovator and to explore the contingencies which shape their particular approach to managing innovation. Work by David Birch, for example, looked at those

| TABLE 2.2 | **Advantages and disadvantages for small firm innovators** |
|---|---|
| **Advantages** | **Disadvantages** |
| Speed of decision making | Lack of formal systems for management control, e.g. of project times and costs |
| Informal culture | Lack of access to key resources, especially finance |
| High quality communications – everyone knows what is going on | Lack of key skills and experience |
| Shared and clear vision | Lack of long-term strategy and direction |
| Flexibility, agility | Lack of structure and succession planning |
| Entrepreneurial spirit and risk taking | Poor risk management |
| Energy, enthusiasm, passion for innovation | Lack of application to detail, lack of systems |
| Good at networking internally and externally | Lack of access to resources |

SMEs – 'gazelles' – which offered high growth potential (greater than 20%/year) – clearly of interest in terms of job creation and overall economic expansion.[19] But subsequent studies of SMEs and growth suggests the innovation picture is more complex. In particular the idea that high-tech, young and research-intensive SMEs in fast-growing sectors were associated with high economic growth does not appear to hold water. Instead gazelles had relatively little to do with high tech – US figures from the Bureau of Statistics suggest that only 2% of high-growth SMEs are high tech, gazelles were somewhat older than small companies in general and few gazelles were found in fast-growing sectors. Only 5% of gazelles were present in the three fastest-growing US sectors, and the top five sectors in which high-growth SMEs were found were in slow-growth sectors like chemicals, electrical equipment, plastics and paper products.[20] As Birch commented in 2004 '*most people think that companies are like cows – growing a lot when young and then very little thereafter . . . . It turns out we're mistaken. Companies, unlike cows, are regularly "born again" – they take on new management, stumble on a new technology or benefit from a change in the marketplace. Whatever the cause, statistics show older companies are more likely to grow rapidly than even the youngest ones . . .*'.[21]

This perspective is borne out by studies in the OECD and of long-standing SME-led development in areas like Cambridge in the UK.[22] It argues for a more fine-grained view of SMEs and their role as innovators and sources of growth – whilst high-tech research-performing firms of this kind are important , so too are those 'hidden' innovators in more mature sectors or performing process rather than product innovation.

## Project-based organizations

For many enterprises the challenge is one of moving towards project-based organization – whether for realizing a specific project (such as construction of a major facility like an airport or a hospital) or for managing the design and build around complex product systems like aero engines, flight simulators or communications networks. Project organization of this kind represents an interesting case, involving a system which brings together many different elements into an integrated whole, often involving different firms, long timescales and high levels of technological risk.[6]

Increasingly they are associated with innovations in project organization and management, for example, in the area of project financing and risk sharing. Although such projects may appear very different from the core innovation process associated with, for example, producing a new soap powder for the mass market, the underlying process is still one of careful understanding of user needs and meeting those. The involvement of users throughout the development process, and the close integration of different perspectives will be of particular importance, but the overall map of the process is the same.

## Networks and systems

As we saw in Chapter 1, one of the emerging features of the twenty-first-century innovation landscape is that it is much less of a single enterprise activity. For a variety of reasons it is increasingly a multiplayer game in which organizations of different shapes and sizes work together in networks. These may be regional clusters, or supply chains or product development consortia or strategic alliances which bring competitors and customers into a temporary collaboration to work at the frontier of new technology application. Although the dynamics of such networks are significantly different from those operating in a single organization and the controls and sanctions much less visible, the underlying innovation process challenge remains the same – how to build shared views around trigger ideas and then realize them. Throughout the book we will look at the particular issues raised in trying to manage innovation beyond the boundaries of the organization and Chapter 6 in particular picks up this theme of managing across innovation networks.

One of the key implications of this multiplayer perspective is the need to shift our way of thinking from that of a single enterprise to more of a systems view. Innovation doesn't take place in isolation and if we are to manage it effectively we need to develop skills in thinking about and operating at this system level. Such a system view needs to include other players – customers and suppliers, competing firms, collaborators and beyond that a wider range of actors who influence the ways in which innovation takes place.[23,24]

## Variations in national, regional and local context

Thinking about the wider context within which innovation takes place has led to the emergence of the concept of 'innovation systems'. These include the range of actors – government, financial, educational, labour market, science and technology infrastructure, etc. – which represent the context within which organizations operate their innovation process,[25] and the ways in which they are connected. They can be local, regional and national – and the ways in which they evolve and operate vary widely. In some cases there is clear synergy between these elements which create the supportive conditions within which

## CASE STUDY 2.1

### The power of regional innovation systems

Michael Best's fascinating account of the ways in which the Massachusetts economy managed to reinvent itself several times is one which underlines the importance of innovation systems. In the 1950s the state suffered heavily from the loss of its traditional industries of textiles and shoes but by the early 1980s the 'Massachusetts miracle' led to the establishment of a new high-tech industrial district. It was a resurgence enabled in no small measure by an underpinning network of specialist skills, high-tech research and training centres (the Boston area has the highest concentration of colleges, universities, research labs and hospitals in the world) and by the rapid establishment of entrepreneurial firms keen to exploit the emerging 'knowledge economy'. But in turn this miracle turned to dust in the years between 1986 and 1992 when around one-third of the manufacturing jobs in the region disappeared as the minicomputer and defence-related industries collapsed. Despite gloomy predictions about its future, the region built again on its rich network of skills, technology sources and a diverse local supply base, which allowed rapid new product development to emerge again as a powerhouse in high technology such as special-purpose machinery, optoelectronics, medical laser technology, digital printing equipment and biotech.

*Source*: Best, M. (2001) *The New Competitive Advantage*, Oxford University Press, Oxford.

innovation can flourish, for example, the regional innovation-led clusters of Baden-Württemberg in Germany, Cambridge in the UK, Silicon Valley and Route 128 in the USA, or the island of Singapore.[22,26,27] Increasingly effective innovation management is being seen as a challenge of connecting to and working with such innovation systems – and this again has implications for how we might organize and manage the generic process – see Case study 2.1. (We discuss national systems of innovation in more depth in Chapter 4.)

## Do better/do different

It's not just the sector, size of firm or wider context which moderates the way the innovation process operates. An increasing number of authors draw attention to the need to take the degree of novelty in an innovation into account.[28–30] At a basic level the structures and behaviours needed to help enable incremental improvements will tend to be incorporated into the day-to-day standard operating procedures of the organization. More radical projects may require more specialized attention, for example, arrangements to enable working across functional boundaries. At the limit the organization may need to review the whole bundle of routines which it uses for managing innovation when it confronts discontinuous conditions and the 'rules of the game' change. The website has some examples of organizations confronting this challenge. The video interview with Patrick McLaughlin on Cerulean highlights the difficulties in creating an organization capable of producing radical innovation whilst the Philip's case study explores the issues in creating and executing radically new projects within a large organization.

As we saw in Chapter 1, we can think of innovation in terms of two complementary modes. The first can be termed 'doing what we do but better' – a 'steady state' in which innovation happens but within

a defined envelope around which our 'good practice' routines can operate. This contrasts with 'do different' innovation where the rules of the game have shifted (due to major technological, market or political shifts, for example) and where managing innovation is much more a process of exploration and coevolution under conditions of high uncertainty. A number of writers have explored this issue and conclude that under turbulent conditions firms need to develop capabilities for managing both aspects of innovation.[31–33]

Once again the generic model of the innovation process remains the same. Under 'do different' conditions, organizations still need to search for trigger signals – the difference is that they need to explore in much less familiar places and deploy peripheral vision to pick up weak signals early enough to move. They still need to make strategic choices about what they will do – but they will often have vague and incomplete information and the decision making involved will thus be much more risky – arguing for a higher tolerance of failure and fast learning. Implementation will require much higher levels of flexibility around projects – and monitoring and review may need to take place against more flexible criteria than might be applied to 'do better' innovation types.[34]

For established organizations (like Cerulean and Philips) the challenge is that they need to develop the capability to manage both kinds of innovation. Much of the time they will need robust systems for dealing with 'do better' but from time to time they risk being challenged by new entrants better able to capitalize on the new conditions opened up by discontinuity – unless they can develop a 'do different' capability to run in parallel. New entrants don't have this problem when riding the waves of a discontinuous shift, for example, exploiting opportunities opened up by a completely new technology. But they in turn will become established incumbents and face the challenge later if they do not develop the capacity to exploit their initial advantage through 'do better' innovation process and also build capability for dealing with the next wave of change by creating a 'do different' capability.[35]

The challenge is thus – as shown in Figure 2.2 – to develop an ambidextrous capability for managing both kinds of innovation within the same organization. We will return to this theme repeatedly in
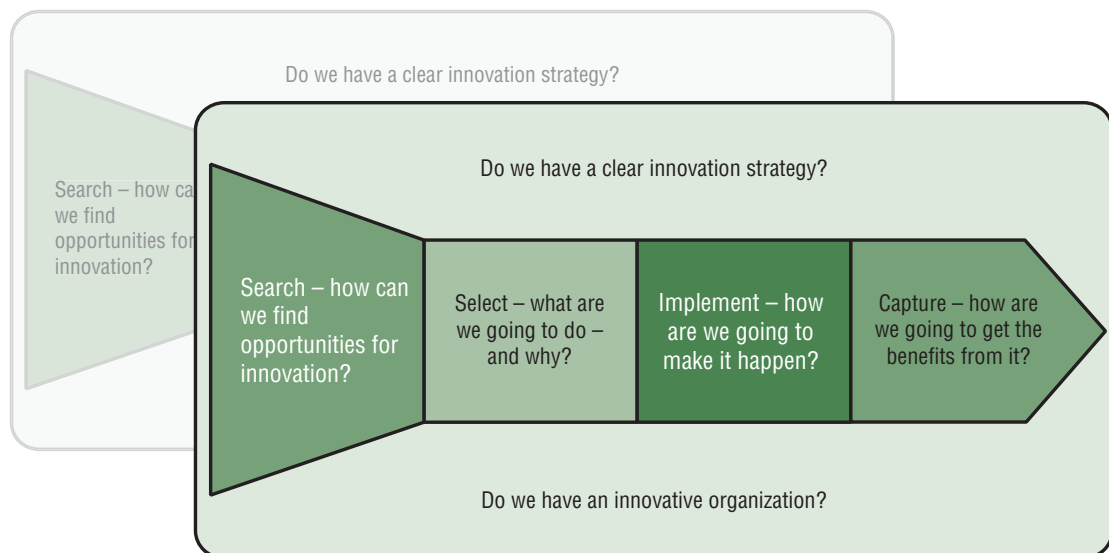


**FIGURE 2.2:  Managing steady-state and discontinuous innovation**

| TABLE 2.3 | How context affects innovation management | | |
|---|---|---|---|
| **Context variable** | **Modifiers to the basic process** | **Example references discussing these** | |
| Sector | Different sectors have different priorities and characteristics, e.g. scale-intensive, science-intensive | 36, 37 | |
| Size | Small firms differ in terms of access to resources, etc. and so need to develop more linkages | 18, 38–41 | |
| National systems of innovation | Different countries have more or less supportive contexts in terms of institutions, policies, etc. | 25, 26, 42 | |
| Life cycle (of technology, industry, etc.) | Different stages in life cycle emphasize different aspects of innovation, e.g. new-technology industries versus mature established firms | 43–46 | |
| Degree of novelty – continuous vs. discontinuous innovation | 'More of the same' improvement innovation requires different approaches to organization and management to more radical forms. At the limit firms may deploy 'dual structures' or even split or spin off in order to exploit opportunities | 28, 47–49 | |
| Role played by external agencies such as regulators | Some sectors, e.g. utilities, telecommunications and some public services, are heavily influenced by external regimes which shape the rate and direction of innovative activity. Others – like food or healthcare – may be highly regulated in certain directions | 50, 51 | |

the book, exploring the additional or different challenges posed when innovation has to be managed beyond the steady state.

Table 2.3 lists some of the wide range of influences around which organizations need to configure their particular versions of the generic innovation process. The key message in this section is that the same generic process can be observed – the management challenge is configuration. On the website there is an exercise designed to explore different sectoral patterns of innovation.

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