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# Cloud Product Strategy, Vision, Market Positioning, and Pricing

Saltan Andrey, Kittlaus Hans-Bernd

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# Cloud product strategy, vision, market positioning, and pricing

**Andrey Saltan and Hans-Bernd Kittlaus**[1]

**Abstract** Cloud computing has become an integral part of today's IT and business landscapes, providing flexibility and scalable virtual resources for many applications. This chapter discusses important business topics related to managing cloud products, including developing product strategies, positioning products in the market, and choosing appropriate pricing methods. It covers key features and main cloud service models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), highlighting their benefits for both customers and providers.

**Keywords** Product strategy · Cloud computing · Cloud pricing

## Introduction

Cloud computing has become a critical backbone for modern IT and business environments. In particular, public cloud services have experienced significant year-over-year growth, driven by the increased demand for agile, scalable, and cost-effective solutions. According to the latest update to the IDC Worldwide Software and Public Cloud Services Spending Guide, worldwide spending on public cloud services is forecast to reach $805 billion in 2024 and double in size by 2028, fueled by a five-year compound annual growth rate of 19.4% [5]. Similarly, Gartner projects that the public cloud services market will expand to $1.28 trillion by 2028, growing at around 20% from 2023 through 2028 [34]. Notably, this level of

A. Saltan (✉)
LUT University, Lahti, Finland and ISPMA, Stuttgart, Germany
e-mail: andrey.saltan@lut.fi

H.-B. Kittlaus
InnoTivum, Rheinbreitbach, Germany and ISPMA, Stuttgart, Germany
e-mail: hbk@innotivum.de

sustained growth underscores how cloud now dominates tech spending across infrastructure, platforms, and applications.

Beyond these headline figures, the rapid evolution of data analytics, AI/ML, and edge computing continues to accelerate cloud adoption. As organizations intensify their investments in AI-driven solutions, they increasingly rely on cloud platforms to build, test, and deploy applications [8, 9]. This environment supports ongoing innovation while also pushing enterprises to modernize their technical and business models. The COVID-19 pandemic gave an additional boost to cloud migrations by amplifying the need for remote work and more elastic infrastructure, contributing to especially high growth rates in 2020 and 2021 [1].

Although public cloud services (i.e., cloud services delivered over the internet and shared among multiple organizations) garner the most attention, they are only one of three principal deployment models: private cloud (dedicated for single-organization use) and hybrid cloud (combining on-premises or private clouds with public cloud services) also play crucial roles in the broader cloud ecosystem. In this chapter, we will concentrate mainly on public cloud computing services while noting, where relevant, how private and hybrid approaches differ. Furthermore, when we refer to "cloud computing" in this chapter, we are primarily referring to the public cloud model.

From a business standpoint, at least three main categories of cloud providers can be distinguished: (1) traditional enterprise software vendors transitioning to cloud-based deployments, (2) newer "born-in-the-cloud" companies that typically offer a single flagship cloud solution, and (3) large IT vendors seeking to expand into the software or Platform-as-a-Service (PaaS) space [37]. All of these players are capitalizing on the clear benefits of the cloud model — speed to market, elasticity, lower entry costs, among others — while confronting new operational challenges, such as reengineering existing business processes, updating pricing strategies, and revising organizational structures around DevOps and continuous delivery [31].

This chapter addresses three essential business aspects of cloud product management: defining cloud product strategy, conducting market research and positioning, and establishing a pricing approach. All these aspects are essential elements of software business strategy, tactics, and operations. Informed decision-making requires the involvement of different stakeholders and comprehensive data analysis. Achieving both appears to be challenging, and processes related to these aspects remain mostly under-managed in the software business. In addition to considering the business aspects mentioned above for cloud computing as a whole, we separately consider their features for main cloud computing models.

To a large extent, our chapter builds on a wealth of existing software product management and business literature, including ISPMA-Compliant[2] Study Guide and Handbook for Software Product Managers by Hans-Bernd Kittlaus [12]. However, product management of cloud computing solutions differs from the way it is performed for software products following the on-premises option. Our analysis emphasizes how cloud computing's distinct characteristics — continuous delivery, rapid market shifts, ongoing service operations — shape the decision-making around product strategy, positioning, and pricing.

To set the stage, we begin with a concise definition and classification of cloud computing, clarifying both customer-facing and production-oriented perspectives. A clear understanding of the technological and operational underpinnings of cloud solutions is critical for recognizing their chief advantages and disadvantages and how these are perceived across the market. Only then can software businesses formulate effective product strategies that capitalize on cloud computing's potential while mitigating its risks.

## Cloud Product Definition

Cloud computing has been given numerous definitions since its advent at the turn of the 21st century [28]. The National Institute of Standards and Technology (NIST) has provided a widely known definition of cloud computing, defining it as "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction". [19] Below, we highlight four definitions offered by four leading cloud computing providers (HP, Microsoft, IBM, and Amazon Web Services) that additionally reveal the economic essence of cloud computing, complementing the definition provided by NIST:

– **HP:** "The cloud" is not a place, but a method of managing IT resources that replaces local machines and private data centers with virtual infrastructure. In the cloud computing model, users access virtual compute, network, and storage resources made available online by a remote provider. These resources can be provisioned instantly, which is particularly useful for

[2] The International Software Product Management Association (ISPMA) is an independent and not-for-profit association dedicated to advancing the discipline of software product management. Both authors of this chapter are associated with ISPMA.

companies that need to scale their infrastructure up or down quickly in response to fluctuating demand [38].

- **Microsoft:** Simply put, cloud computing is the delivery of computing services – including servers, storage, databases, networking, software, analytics, and intelligence – over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping you lower your operating costs, run your infrastructure more efficiently, and scale as your business needs change [39].
- **IBM**: Cloud computing is on-demand access, via the internet, to computing resources – applications, servers (physical servers and virtual servers), data storage, development tools, networking capabilities, and more – hosted at a remote data center managed by a cloud services provider [40].
- **Amazon Web Services (AWS)**: Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider [38].

## *Cloud Product Characteristics and Typology*

Cloud computing definitions provided by the leading players in the market show how cloud computing is conceived today: clouds are a large pool of easily usable and accessible virtualized resources. These resources can be dynamically reconfigured to adjust to a variable load (scale), also allowing for optimum resource utilization. Looking for the minimum common denominator leads us to understanding that cloud computing works as an umbrella term, and a lot depends on the type of cloud service. However, the following aspects can often be identified:

- **On-demand measured self-service**: cloud services such as CPU time, storage, network access, and web applications can be allocated automatically as required by customers without any human interaction. Cloud resources and services are monitored, controlled, and optimized by cloud service providers.
- **Broad Network Access:** customers can access cloud resources over the Internet all the time and from anywhere through different types of devices. Customers can fulfill all their needs through a net service using a laptop or a mobile phone.
- **Resource Pooling:** physical and virtual computing resources are pooled into the cloud. These resources are not dependent on location in the sense that customers have no control over or knowledge about their location.

- **Elasticity and Scalability:** computing resources can be rapidly and elastically provisioned and released based on the demand of the customer. Cloud providers can add new nodes and servers with minor modifications to the cloud infrastructure and software. Customers view these resources as if they are infinite and can be purchased in any quantity at any time.
- **Multitenancy:** a cloud offering is usually intended to provide services to multiple customers at the same time. Those customers share cloud resources at the network, host, and application levels. When multiple customers run on the same instance of software solution in the runtime environment without influencing each other or having access to each other's data, it is called multitenancy.
- **Customization:** a cloud is a reconfigurable environment that can be customized and adjusted in terms of infrastructure and applications based on customer demand.

All characteristics are given in the maximum ideal scenario where the provider has unlimited computing resources and the ability to ensure the lack of any unavailability of the service. In a real-life context, all terms and conditions of the offering for each cloud service are documented in the service-level agreement (SLA). This agreement between customers and cloud service provider clarifies and specifies all aspects of the service (e.g., availability of the cloud service 99.95% of the time or data storage in a specific country or region) and defines responsibilities for their violation.

Most cloud computing services fall into three broad categories:

- Infrastructure as a Service (IaaS): The cloud service provider offers a set of virtualized computing resources, such as CPU and memory. IaaS uses virtualization technology to convert physical resources into logical resources that can be dynamically provisioned and released to customers as needed. Some of the major companies offering IaaS include Microsoft Azure, Amazon Web Services (AWS), IBM, and Verizon.
- Platform as a Service (PaaS): With PaaS, a cloud service provider offers, runs, and maintains both system software (i.e., the operating system) and middleware on top of IaaS. PaaS usually provides a software development environment and hosting of applications developed using this platform. Other services may include collaboration, database integration, security, web service integration, and scaling. Customers do not need to worry about having their own hardware and software resources or hire experts to manage these resources. Customers purchase access to platforms, enabling them to deploy their own software and applications in the cloud. Examples of PaaS solutions include Windows Azure, Heroku, Google App Engine, and Apache Stratos.
- Software as a Service (SaaS). With SaaS, cloud service providers often run and maintain application software on top of PaaS. Customers can access the

application software through an application interface over the internet. Unlike traditional software, SaaS has the advantage that customers do not need to buy licenses, install, upgrade, maintain or run software on their own computer. Examples of companies offering SaaS are Google Documents, Dropbox, Salesforce, HubSpot, and Zendesk.

These three types of cloud computing are sometimes called the cloud computing "stack" because they build on top of one another. Fig. 1 illustrates the difference between these three main types in comparison to traditional on-premises IT solutions and pure data hosting and colocation [30].

As more cloud-based models are continuously introduced in the markets, the acronym XaaS (Anything-as-a-service) has been coined to cover this variety of services [41]. Such services include Database-as-a-Service (DBaaS), Desktop-as-a-Service (DaaS), Communications-as-a-Service (CaaS), and Monitoring-as-a-Service (MaaS). While all these models are currently available, we focus on the three canonic types introduced by NIST within this chapter.

The transition to the cloud model is revolutionizing the software market, sending shockwaves through the IT market, significantly impacting both cloud providers and customers. Such a shift would not be possible without the significant benefits that this model brings to both sides of the market. Along with the key features and types of cloud computing services, understanding these key benefits is important when talking about the business and marketing aspects of cloud computing.

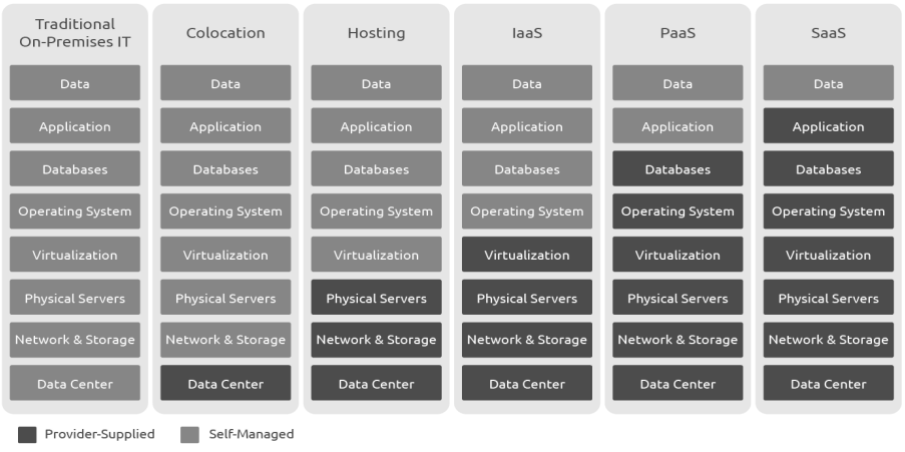


**Fig. 1** Cloud computing stack

## *Cloud Products from the Customer Perspective*

Below, we list main benefits that drive further adoption of cloud from the customer perspective:

- Cost efficiency
- Payment flexibility as customers pay for the services they use
- Access to enterprise-level IT resources and infrastructure
- Rapid global scale up and scale down of the resources based on the requirements at any time
- Accessibility from any location
- Ease of use and maintenance managed by cloud provider
- Security as cloud providers offer a broad set of policies, technologies, and controls that strengthen overall security, protecting from potential threats.

One of the biggest advantages of cloud computing is the ability to reduce IT and software costs. It starts with minimal initial investments for the IT infrastructure and the opportunity to run software without upfront purchase of licenses. Multiple case studies and research investigations assure that in the long-term, cloud services are more financially beneficial than traditional legacy solutions. The widely accepted approach for the determination and estimation of long-term direct and indirect costs for IT and software products and services is Total Cost of Ownership (TCO) [17].

There is no single formula for calculating TCO. It should be calculated by each company individually taking into account multiple factors. The simplest calculation considers the following factors:

- Initial investments / Acquisition costs
- Installation and customization costs
- Operation costs
- Maintenance costs
- Downtime costs
- Remaining value
- Personnel Costs

However, this list can be significantly expanded. In the calculation, the formula itself takes into account the evaluation of a number of risk factors. Many cloud providers have their own TCO calculation services (e.g., offered by AWS [42]) that they use to show basic value, and they use this tool to convince customers to purchase their cloud services.

### *Cloud Products from the Provider Perspective*

From the provider perspective, benefits of transition to a cloud computing model are the following:

- Obtain long-term higher profit margin and revenue
- Reduce opportunity costs and utilize economies of scale
- Expand the range of services provided
- Obtain market leadership and change "the rules of the game"
- Increase the reliability of customer relationships
- Facilitate geographical expansion
- Facilitate upgrading, modification, and customization processes
- Obtain agility and scalability of development and deployment
- Obtain better quality of business analytics for decision-making
- Avoid software piracy

Cloud transition challenges:

- Redesign the business model and strategy to address such issues as the economy of scale, servitization, and shift from on-premises to on-demand
- Ensure that the pricing scheme provides a sufficient level of flexibility and total cost reduction for customers
- Provide customers with tangible arguments for cloud solutions benefits, including cost reduction and performance increase
- Design new pricing strategies and policies
- Redefine the customer segments to address geographical expansion and customization
- Provide customers with strong arguments against prejudices concerning the high risks of security and privacy while using cloud solutions
- Focus on using direct Internet related channels as major communication and sales channels
- Reconsider partners' networks to address the new structure of distribution channels, including other cloud providers
- Design reliable SLA ensuring its compliance with the cloud model
- Ensure compliance with regulations across countries and industries

## Cloud Product Mission and Vision

Mission and vision statements have guided organizations for decades, initially on a company-wide level [2]. A **mission statement** typically defines a company's fundamental purpose — its business, objectives, and approach — while a **vision**

**statement** describes the desired future position or overarching aspiration. In practice, these concepts can blend: some organizations present a single statement that combines their purpose, goals, and values. We can define them more briefly:

- The Mission Statement is the definition of the purpose of existence.
- The Vision Statement is the description of the desired future position.

Over time, these foundational concepts have been increasingly applied at the product level. This holds especially true for cloud products, where the pace of innovation and customer expectations require a clear articulation of purpose and direction. A cloud product vision, for instance, outlines what the product will become over a strategic time horizon — usually between one and five years — depending on the product's nature and market dynamics.

## *Mission Statement for Cloud Products*

A product mission is directly linked to how a product is positioned in its target market. Positioning itself is about ensuring the product occupies "a clear, distinctive, and desirable place relative to competing products in the minds of target customers" [13]. In other words, the mission statement and the positioning are deeply intertwined: the mission offers the essence of what the product does and why, while positioning provides the context and uniqueness in the marketplace [7].

Below are some examples of mission statements in the cloud (or cloud-related) domain [20, 43]. Notice how each is short, memorable, and abstract, yet effectively conveys what the product or service is designed to accomplish:

- Facebook: "To give people the power to build community and bring the world closer together."
- LinkedIn: "To connect the world's professionals to make them more productive and successful."
- Uber: "To bring transportation – for everyone, everywhere."
- Amazon (retail platform): "We strive to offer our customers the lowest possible prices, the best available selection, and the utmost convenience."
- Amazon Web Services: "The AWS mission is to enable developers and businesses to use web services to easily build and be paid for sophisticated, scalable applications."
- Slack: "Slack brings all your team's communication together, giving everyone a shared workspace where conversations are organized and accessible."
- Mailchimp: "Send better e-mail. We help millions of customers to find their audience, engage their clients, and build their brand."

These examples illustrate how a concise mission statement underpins everything from marketing messages to product development choices. The product mission is also the basis for positioning the product in its target market, or it is the condensed summary of the positioning of the product. What is a product mission statement good for? In combination with the positioning, it serves as the foundation of all marketing messages. It is also the linchpin for decisions regarding product changes and extensions answering the question "Is this still in line with our mission?"

## *Vision Statement for Cloud Products*

While a mission statement explains "why we exist," a vision statement describes "where we are headed." Vision statements for cloud products point to an ambitious, yet achievable future. Here are a few examples drawn from cloud-centric or digital businesses [43]:

- Facebook: "People use Facebook to stay connected with friends and family, to discover what's going on in the world, and to share and express what matters to them"
- LinkedIn: "To create economic opportunity for every member of the global workforce"
- Uber: "Smarter transportation with fewer cars and greater access. Transportation that's safer, cheaper, and more reliable; transportation that creates more job opportunities and higher incomes for drivers."
- Amazon (retail platform): "To be Earth's most customer-centric company, where customers can find and discover anything they might want to buy online"

Some of these statements resemble mission statements more than "future state" descriptions. Others (particularly Uber and Amazon) emphasize a clear vision of what the future could look like. A truly effective cloud product vision can also include details on customer value, technology aspirations, and the unique role the product will play in its market.

All of examples above are quite brief. However, vision statements can be more comprehensive such as this vision for a CRM SaaS product [22]:

> *"For a mid-sized company's marketing and sales departments who need basic CRM functionality, the CRM-Innovator is a Web-based service that provides sales tracking, lead generation, and sales representative support features that improve customer relationships at critical touch points. Unlike other services or package software products, our product provides very capable services at a moderate cost."*

A strong product vision is often essential to engage and convince all stakeholders inside and outside of the company of the worth of a product. A vision describes what the future product will be, why it is needed, and why it will be successful [18]. The elements of the product strategy provide the details that turn the vision into a manageable and executable path to the future. In bigger companies, a product vision needs to be aligned with the corporate vision.

The first version of the product vision is needed when work on the development of the product's first version starts. Over time, the product vision continues to evolve so that it always looks ahead, at least within the limits of the proposed strategic timeframe vision.

A compelling product vision can energize stakeholders—both internal teams and external audiences—and serve as a "guiding star" for strategic decisions. It typically addresses:

- **Conceptual Image:** What the future product will be.
- **Customer Value Proposition:** Why the product is needed and how it uniquely solves pain points.
- **Business Value:** How it will generate success for the vendor (e.g., revenue, market share, brand leadership).

A product vision always focuses on a point in the future, and is presented as a relatively short statement, usually no more than one page. The vision needs to be phrased from a marketing perspective, in a style that has a motivating effect on external and internal stakeholders by painting a desirable, ambitious, but achievable future. The product vision is especially important throughout the start phase when the first version of the product is conceived and developed.

The term "product vision" is also used in connection with agile methodologies, in particular Scrum. While it is not mentioned in the Scrum Guide [35], most Scrum consultants consider it an important element of the Scrum approach. Originally, this agile product vision was focused on a given development task. It was supposed to describe in a condensed way what the Scrum Team was asked to develop within a couple of weeks or months. Over time, some Scrum consultants, e.g., Pichler [27], have broadened the scope and use product vision in the sense defined here.

## *Development of a Product Vision*

A convincing product vision looks very straight-forward, logical, and easy. However, developing it is more difficult and time consuming than most people expect. We suggest the template used in a number of software companies [12]. It can support the development of a vision by focusing on the problem space and the

solution space. The problem is described in a solution-neutral manner and explains the pain-points addressed by the solution as well as the criteria used for evaluating product success from the customer perspective. The solution is described in terms of use scenarios, features, benchmarks, and the unique value proposition. A combination of the product manager's draft as a synthesis of ideas and contributions solicited internally [10] and a workshop approach [4] can be recommended.

Fig. 2 illustrates the template. The example is drawn from a product that tracks consumables in an operating theatre. This template ensures that relevant information is collected but does not automatically result in a wording that is marketing oriented. The second step turns it into a marketing statement. This transformation can be made by re-ordering the presentation of the vision statement:

> "In order to significantly decrease clinics' effort and increase the availability of operating theatres, the Consumables Tracking Solution (CTS) reduces the nurses' and analysts' manual work by tracking the use of consumables in an operation, enabling its analysis, and automating reporting. It enables clinics to increase the efficiency of the operation work and deliver decision-support for consumable planning and improvement."

Often companies want shorter vision statements like the following:

> "The Consumables Tracking Solution (CTS) increases clinics' efficiency and reduces cost by automating the tracking, analysis and reporting of consumables in operating theatres."

In order to achieve the buy-in of the product team members, it can help to develop and evolve the product vision in workshops with the key team members. In later stages of the product life cycle, when vendors usually want to reduce their investment level, it becomes more difficult to come up with a convincing vision statement.

A compelling product vision can be a powerful instrument to keep the product team aligned and on track, especially during the development of the initial version of the product. It can also be a good marketing tool during initial product launch and during later phases of the life cycle communicating the core direction of the product development.

| **Problem statement** | |
|---|---|
| the problem of | immense effort for reporting consumables |
| affects | nurses, and the clinic overall |
| the impact of which is | inefficient use of operating theatres |
| a successful solution | increases the availability of the operating theatres. |
| **Position statement** | |
| for | nurses and analysts |
| who | administrate, assist in, and improve operations |
| the | **Consumables Tracking Solution (CTS)** |
| that | tracks the use of consumables in an operation, enables its analysis, and automates reporting |
| unlike | the current labor-intensive manual approach |
| our product | increases the efficiency of operations and delivers decision-support for consumable planning and improvement. |

**Fig. 2** Example of a problem and position statement [44]

Research underscores the significance of a clear vision in new product development projects. In high-tech industries, Lynn et al. [15] found that product success correlates most strongly with having a robust vision alongside a well-defined development process. Further analysis by Lynn and Akgün [16] considered factors such as vision clarity, vision stability, and how strongly team members support and share the vision:

- **Vision Clarity:** Correlates with success in both evolutionary market/technical innovation and revolutionary innovation (but not as strongly in incremental innovation).
- **Vision Stability:** Correlates with success in incremental and evolutionary market innovations.
- **Vision Support:** Correlates with success in incremental and evolutionary technical innovations.

In other words, the right balance of a clear, stable, and widely shared vision can drive a project's success — especially in cloud-based solutions, which often undergo rapid evolutionary or even revolutionary changes.

Mission and vision statements — once purely the domain of overall corporate strategy — are now equally vital for individual products, particularly in cloud computing. The mission concisely states the product's reason for being, setting the context for positioning and guiding core decisions. The vision presents a compelling snapshot of the future, inspiring stakeholders to rally behind a shared goal.

In dynamic, fast-paced cloud markets, a clearly articulated mission and vision not only drive internal focus and motivation but also resonate with external audiences — customers, partners, and investors — who want to see purpose, innovation, and staying power. In subsequent explorations of product strategy, market positioning, and pricing, it is essential to remember that mission and vision statements are the cornerstones that shape each decision, feature priority, and market message. These

statements keep the product both grounded and aspirational, ensuring it remains relevant, differentiated, and enduring in an ever-changing landscape.

## Market Positioning

Formally, positioning is the process of defining a product's identity and communicating this identity to target audiences. Less formally, it can be described as a technique for presenting products in the most favorable light to potential customers. An efficient market positioning allows companies (cloud providers in our case) to create a strong competitive position, define a clearer target market, connect its products to consumer needs and, as a result, improve acquisition, monetization, and the retention of customers [12]. Ultimately, good positioning facilitates both external communications (sales and marketing) and internal decision-making, providing a framework against which to evaluate new features, pricing models, and market opportunities.

### *Market Positioning Contents*

According to Kotler and Armstrong, a product's objective is "to occupy a clear, distinctive, and desirable place relative to competing products in the minds of target customers" [13]. This clarity of focus makes it easier for sales and marketing teams to tailor messages to specific groups and ensures that product development remains aligned with strategic goals.

Dunford identifies four major options to frame and position product on a strategic level, which are fully consistent with the case of cloud services [7]:

- Dominate an existing product category.
- Dominate a segment of an existing product category.
- Reframe an existing product category.
- Create a new product category.

The choice largely determines the entire scope of subsequent decisions required for market positioning. Since market competition is inevitable, one of the important aspects of positioning is the question of how a product differentiates itself in the market. This question is related to the concept of Unique Value Proposition which describes value elements that none of the available alternatives can provide. For proprietary products including cloud solutions, the typical differentiating arguments are better functionality, higher level of integration, and performance.

Once the market for the product has been defined, the positioning must focus on describing the value delivered by the product. This has to be updated over time as the value of the product will hopefully increase with each new version or release. The value must be considered from the customer's perspective; for example, which business outcomes does the product enable, and how does it solve real-world problems? Market segmentation, i.e., building customer segments as subsets of the total market of the product, may be needed when various segments experience different business values from using the product [36]. Customer usage analytics, easily implementable for cloud providers, offer significantly more opportunities for real-time analysis and tracking of how cloud solutions are used and what value customers gain from it. When processed properly, such analytics can not only help to increase the quality of the product, but also to better position it.

Cloud providers need to be specific about the customer segment(s) they are targeting so that they can develop a thorough understanding of customer needs. This understanding is key to developing compelling value propositions that help sell the product. Here, methods like the Value Proposition Canvas can help [24, 26]. However, this does not mean that customer segments always have to be narrowly focused; according to Moore [21, 22] how broad or narrow the target segment can be depends on the maturity of the respective market. For example, when bringing to market a completely new type of B2B product (what Moore and Dunford call a new product category) it is often useful to kick-start mainstream adoption by focusing on a small, well-defined market niche (the beachhead segment). The strategy is to expand into adjacent market niches later one after the other (bowling alley strategy). Once the new product category is better understood in the market and broad adoption sets in at a fast pace (tornado phase), the vendor's next top priority is capturing a market share. At this stage, an undifferentiated strategy is suitable.

Customer understanding is translated into the value propositions that (hopefully) strongly resonate with the customer segments and help sell the products [25]:

- Pain relievers "eliminate or reduce negative emotions, undesired costs and situations, and risks your customer experiences or could experience before, during, and after getting the job done".
- Gain creators "create benefits your customer expects desires or would be surprised by, including functional utility, social gains, positive emotions, and cost savings".

Delivering a compelling value proposition in the cloud often requires more than a standalone product. Additional services, integrations, or partner solutions are typically necessary to create what Moore [22] refers to as the concept of the whole product. In other words, providers must identify and secure all the complementary components — analytics tools, support services, or third-party apps — that help customers derive full value. By ensuring these components are readily accessible,

cloud providers can strengthen their positioning and better address the complete needs of their user base.

## *Market Positioning Processes*

Positioning is not a one-time exercise but rather an iterative process involving Product Management, Marketing, Sales, and executive leadership. This alignment is especially crucial for cloud solutions, which tend to evolve more rapidly than traditional software. Several interdependent factors come into play — market segments, product definitions, pricing, and competitive context — of which must be revisited regularly [12].

1. **Determine Customer Value.** It begins with analyzing how and why customers use your product. Alternatives might be a competitor's offering, a custom in-house solution, or simply doing nothing. Pinpointing the drivers of customer value (e.g., reduced costs, operational efficiencies, compliance benefits) sets the foundation for more precise marketing messages and pricing models.
2. **Identify Differentiating Features.** Some features will hold greater importance for certain segments. A single standout capability that resonates strongly with one segment can become the central theme of your positioning. Highlight how that feature outperforms alternatives, providing qualitative (and if possible, quantitative) evidence to support marketing efforts.
3. **Define Value Parameters.** Understand. the parameters that determine product value — for example, CPU usage or storage for an IaaS, number of active users for a SaaS productivity tool. These parameters may later inform a value-based pricing model, where the perceived benefits align with the cost.
4. **Testing, Experimentation, and Feedback**. Cloud providers often have unparalleled access to real-time usage data, enabling continuous experimentation with different positioning statements or messages. More conventional research methods — surveys, focus groups, in-depth interviews — can supplement usage analytics. Over time, refine your positioning based on how customers respond.
5. **Adjust and Evolve**. As the product matures, new releases may shift your positioning emphasis. For instance, a performance upgrade might suddenly become a prime differentiator, or a newly added compliance feature might open doors to a heavily regulated industry. Regularly revisiting your positioning statement ensures it stays aligned with your latest offerings and emerging market needs.

Market positioning is the strategic link between a cloud product's core offerings and its target audience's expectations. By clearly defining how the product meets specific needs, articulating distinct advantages, and continuously refining the message to reflect the product's growth, cloud providers can secure a robust foothold in a competitive environment.

In an industry defined by constant innovation, an agile yet well-structured positioning strategy can make the difference between a product that thrives and one that struggles to find its place. By investing time in understanding market segments, orchestrating the whole product experience, and consistently monitoring customer feedback, cloud providers can build and maintain a compelling, lasting position in their chosen market.

## Product Strategy

A product strategy describes how a product should evolve over a strategic timeframe—typically one to five years—depending on the product's nature and market context [12]. For cloud-based products, the strategy must remain dynamic to keep pace with rapidly changing technologies and evolving customer demands. It is the product manager's responsibility to define and continuously refine this strategy, ensuring it aligns with the organization's overall mission, vision, and market positioning.

When effectively articulated, a product strategy serves as a blueprint, linking the product's vision to the specific activities, resources, and decisions that will guide it into the future. In large companies, each product's strategy must also align with the broader corporate strategy and the strategies of any related products in the portfolio.

The product vision acts as the starting point for developing a detailed product strategy. A strong vision statement conveys the aspirational end state for the product, while the strategy provides the roadmap to get there. Similarly, the strategy should reflect the market positioning by clarifying how the product meets specific customer needs and stands out from competitors. By continually verifying that each strategic decision supports the mission, vision, and positioning, product managers maintain consistency across all initiatives.

## *Product Strategy Contents*

Building from that foundation, a comprehensive product strategy should address several interdependent elements [12]. These elements not only provide structure but also ensure that all functional areas (such as engineering, marketing, sales, operations) work cohesively:

- **Positioning:** What is the target market? What is the value that customers in the target market get from using the product? Is segmentation required because of different value propositions for different customer groups? Which partnerships and alliances are needed?
- **Product Definition:** What is the scope of the product in terms of functionality, quality, and UX design? What is the suggested architecture? For SaaS, what is the business architecture?
- **Delivery model:** How is the product delivered to customers? For cloud products, this is SaaS, PaaS, or IaaS. What degree of customer-specific tailorability is needed / shall be provided?
- **Service Strategy:** Which product-related services are needed / can be offered? Who can offer them?
- **Sourcing:** Where do we find the people needed for developing the product? Shall we make or buy the components of the product?
- **Pricing:** What is the right pricing approach (value- vs. cost-based pricing)? What is the price structure and the price level?
- **Financial Management:** How will revenues and costs develop over the strategic timeframe? Which actions need to be taken based on actual vs. planned numbers?
- **Ecosystem Management:** In which ecosystems are we represented with our product? Do we want our product to be the foundation of an ecosystem of its own? Which roles do we want to play in the relevant ecosystems? Do we establish a partner program, and in which areas?
- **Legal and IPR Management:** How can we protect our product / our company against potential legal risks, including contracts, the protection of intellectual property, open source, and compliance?
- **Performance and Risk Management:** What are the relevant measures for business performance? Which actions need to be taken based on actual vs. planned numbers? Which product-related risks are we facing? How can we mitigate these risks?

These elements often appear in a single, cohesive product strategy document. The need for internal consistency is high because changes in one area (e.g., adjusting the pricing model) typically impact others (e.g., financial forecasts or positioning).

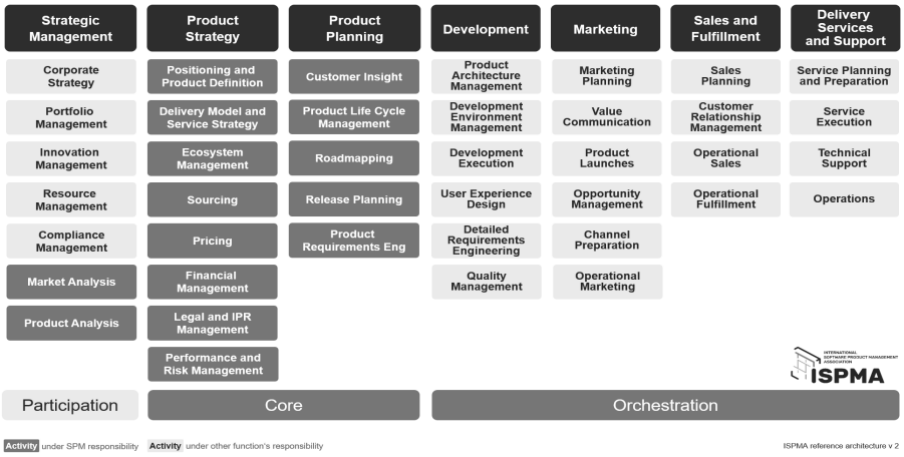


**Fig. 3** ISPMA Software Product Management Framework

## *Product Strategy Processes*

Responsibility for the strategy lies primarily with the product manager, who must collaborate with stakeholders across the organization. This inclusive, iterative process ensures the strategy reflects diverse perspectives and achieves buy-in:

- **Initial Development:** Often begins with a hypothesis about product-market fit, validated through testing and feedback.
- **Ongoing Updates:** As the product evolves, the strategy must be revisited and refined to reflect actual market conditions and organizational changes.

In In startup contexts, this process is especially iterative. Teams commonly follow the cycle of hypothesis → Minimum Viable Product (MVP) → test → conclusion. Ries defines an MVP as the "version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort" [29]. The development and implementation of a product strategy are intertwined through this iterative process.

When a product (and company) is successful and mature, the product strategy tends to be more stable. An update of the product strategy is a more evolutionary process. The implementation of the product strategy is more separated. Since the elements of the product strategy cover all the product-related functional areas of the software organization, all of them need to be involved in and contribute to its implementation. That is shown in ISPMA's SPM Framework [12] as depicted in Fig 3.

Continuous measurement is key to validating product strategy. Potential metrics include:

- **Adoption and Engagement:** Monthly active users (MAUs), session length, or usage frequency.
- **Revenue and Growth:** Monthly recurring revenue (MRR), customer acquisition cost (CAC), or lifetime value (LTV).
- **Operational Metrics:** Uptime, mean time to recovery (MTTR), or cost-efficiency.
- **Customer Satisfaction:** Surveys, Net Promoter Score (NPS), and churn analysis.

Comparing actual performance with targets helps stakeholders decide whether to adjust tactics or pivot strategically. In stable companies, updates to the product strategy are more gradual, but they still benefit from periodic reviews to handle shifts in market conditions or emerging technology trends.

## *Strategic Considerations in the Current Cloud Markets*

### IaaS Vendors

At its simplest form, Infrastructure as a Service (IaaS) is highly commoditized: offering storage and processing power alone provides limited differentiation. This leads to intense price-based competition — "a race to the bottom" that generally favors volume leaders like AWS [6]. Consequently, many IaaS vendors layer software and specialized services on top of basic compute and storage, effectively moving up the stack toward SaaS-like offerings.

Dropbox exemplifies this transition. Founded in 2007, it grew rapidly via a freemium model. By 2017, it introduced Dropbox Paper, a collaborative document-editing service delivered via a web application [14]. This shift from simple file storage (IaaS-like utility) to a richer SaaS solution highlight how vendors can move beyond commodity infrastructure.

### SaaS Vendors

In the Software as a Service (SaaS) domain, early expectations predicted that usage-based pricing would dominate. Yet a quick survey reveals that fixed-price subscriptions often prevail. Reasons include:

- **Customer Budgeting:** Fixed subscriptions are simpler for B2B budgeting.

- **Vendor Simplicity:** Implementing usage-based billing can be complex and costly.
- **Trust Issues:** Customers may distrust metered measurements they cannot independently verify.

Despite the notion of "on demand," many providers effectively bundle services into subscription tiers — like Dropbox's fixed storage tiers — ensuring more predictable revenue and stronger customer stickiness.

**Approaches to Customer Binding**

Platform as a Service (PaaS) and certain advanced SaaS offerings can foster deep customer binding. When a platform includes a proprietary development environment or complex integrations, switching costs rise. Organizations often embed significant effort customizing apps and workflows, making them reluctant to move to a competitor's platform. With PaaS and SaaS offerings, there is more inherent differentiation and customer binding. In particular with PaaS, customer binding can become really strong when the platform includes a proprietary development environment that customers use for developing their own application software and/or customizations.

Whether you are offering IaaS, PaaS, or SaaS, your product strategy anchors all development and go-to-market efforts in a coherent framework. By integrating short-term actions with a long-term vision, you can effectively deliver value, capture market share, and foster lasting customer loyalty in a constantly evolving landscape.

## Pricing of cloud products

We define pricing as the process of decision-making to determine the monetary compensation and related conditions for the goods and services the customer is offered. The entire scope of these decisions, practices, underlying conditions, and processes in respect to cloud products is referred to as cloud pricing. With value-based pricing, the value propositions are the basis for price considerations. In addition, a software vendor must consider factors such as costs, business goals, market segment, and the ability of customers to pay.

Pricing is an essential, crucial, and challenging element of cloud product management and product strategy. Even a small change in the cloud solution price may significantly impact a vendor's financial performance. Defining the price for a solution is part of the comprehensive pricing management strategy that companies

have to manage. An efficient pricing management requires sophisticated decision-making and analytics, as well as coordination and finding compromises between the many business functions involved [32].

Pricing serves as an essential bridge between different business functions (e.g., product management, revenue management, cost management, retention management) and business units (e.g., R&D, production, sales, marketing). The decision-making in pricing is based on an integrated analysis of different perspectives and streams of information. All of this also applies to cloud solutions. We summarize the concept of pricing and its application to the software industry in general before exploring existing knowledge on the role of pricing for cloud providers.

While the commercial success of software companies is very dependent on appropriate pricing, decisions on designing and implementing pricing have always been challenging. If there is a lack of focus in pricing at strategic, tactical, or operational levels, the product and the company are likely to fail. The transition towards the cloud-based business model enables new options for software companies in software development, delivery, and operation. These options have implications for pricing by creating and magnifying the number of pricing design, experiment, and control methods available. These methods include, for example, recurring subscription fees, new methods to ensure efficient price discrimination, and real-time usage tracking [32]. However, these new options can also cause obstacles for companies when old pricing principles and practices become obsolete, and the companies' vision of how the new ones should be designed is unclear.

## *Cloud product pricing strategies, structures, and models*

We start with an overview of cloud pricing practices with pricing strategies. It is commonly agreed to distinguish three main pricing strategies: value-based pricing, market-based pricing, and cost-based pricing [3, 33]. However, cloud service providers have adopted a variety of pricing strategies besides the three main pricing strategies discussed below.

**Value-based Pricing Strategy:** This pricing strategy is grounded in the value perceived by the customer. Perception-value is based on the customers' perceptions of what is expected compared with what is delivered. The necessity to evaluate this value and associated challenges make this strategy much more subjective in comparison with other pricing strategies. The common term of perceptive value is value for money, i.e., the ratio between the customer value of a cloud service and the price. The main advantage of value-based pricing is its subjective fairness for consumers that can compare their expenses with the benefits gained. However, it is

challenging to construct, because the perceived value is primarily measured by the satisfaction of the individual customer, i.e., there can be strong heterogeneity among customers which may require additional segmentation.

**Market-based Pricing Strategy:** This pricing strategy is grounded in the analysis of the market equilibrium of all customers and cloud service providers. The market-based pricing takes into consideration two kinds of impacts on pricing: price sensitivity and market competitiveness for similar services.

**Cost-based Pricing Strategy:** This pricing strategy is grounded in the analysis of a cloud service provider's cost structure. One of the primary reasons to adopt this strategy is that it is clear-cut and tangible. It can also be considered as the "fact"-based pricing. Cost-based pricing can articulate a unit cost and provide a measurement for benchmark comparison. It is one of the managerial tools for many decision-makers to drive business performance. However, since the variable cost for self-developed software products is low, cost-based pricing is usually not directly applicable to SaaS offerings.

All three pricing strategies exist in practice; however, it is very difficult to talk about the frequency of their usage in the cloud context. Even though many pricing experts emphasize advantages and importance of value-based pricing, cost-based and market-based pricing are still common. On the one hand, the cost-based approach helps decision-makers set a baseline to charge customers for the minimum price so that they can at least cover their expenditures. On the other hand, market-based pricing allows companies to rely on market forces and consider the current situation as an equilibrium.

There are many approaches to further structure and systematize pricing. We will pursue the most common and comprehensive one, called the Strategic pricing pyramid [11, 23] (see Fig. 4), and adapt it to the cloud context.

Strategic pricing starts with a clear understanding of customer segments and value delivered to the customers (the bottom layer of the pyramid).

- **Value Creation** is the manner in which value is generated in a customer organization from using the cloud solution, including the metrics that show the impact of certain parameters on the value. Segmentation may be needed if value creation varies across different segments. For example, SaaS providers may distinguish between two market segments: B2B and B2C.
- **Price Structure** is the manner in which the prices for a given cloud solution are offered, including the metric by which those prices may vary depending on the customer's specific parameters (e.g., single price, price based on a number of users, capacity, usage, or the volume of licenses acquired).

The metrics used in the price structure can be determined using value analysis performed at the previous step. Metrics should mirror the generation of customer value which allows cloud providers to justify the price in relation to that customer value. For example, IaaS provider Amazon Web Services: Elastic Compute Cloud (EC2) structures its pricing based on the number of processing unit hours and the amount of storage space. Marketing automation SaaS provider MailChimp structures its pricing based on the number of active subscribers and features used. More options are available to define a price structure including the following:

- One-time vs. periodic, also known as subscription-based pricing.
- Fixed price (one-time or periodic).
- Usage-based pricing (periodic), e.g., based on number of transactions, users or usage hours.
- Free, i.e., no charges, but revenue is generated through advertising.

The resulting price structure may be quite complex, in particular with usage-based pricing when the actual price is calculated anew every month based on the customer's usage metrics in the previous month. In that case, it is important to ensure that back-office systems can reliably handle the complexity and issue correct invoices.

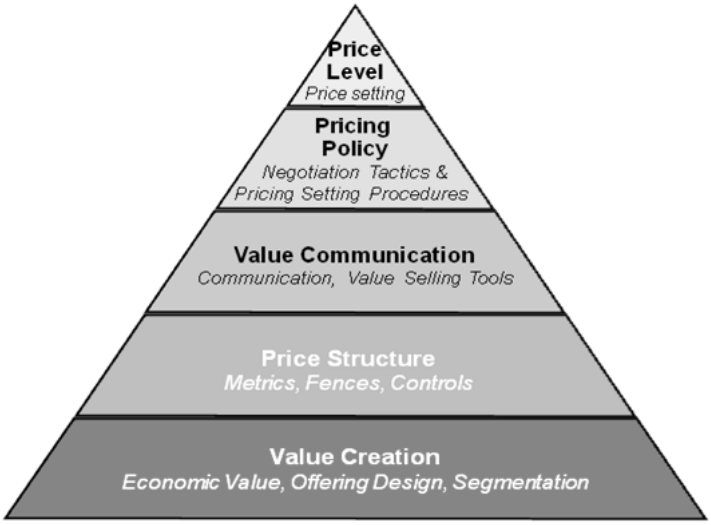


**Fig.4** Strategic pricing pyramid

Maintenance for license products is usually priced as periodic with an annual charge as a percentage of the list price. The percentage is typically in the range of 12–25%,

depending on what is included in the maintenance contract, e.g., version upgrades, 24x7 access to technical support, and number of consulting hours. With SaaS, maintenance is not charged separately, but is included in the periodic charges of the SaaS offering.

For some cloud solutions, more dynamic pricing concepts can be used. For example, IaaS provider CloudSigma uses an algorithm to calculate its hourly pricing – "burst pricing" depending on the current demand for their services [45]. The better value creation and price structure alignment, the smoother the communication of the price to customers.

- **Price and Value Communication** is the communication concept that is the basis for communicating price and value to customers by showing how reasonable the price is for a customer compared to the value they get from using the cloud product. Strategic pricing also includes processes and policies to ensure the integrity of the price structure in the market, for example, fences that prevent the abuse of discounts (e.g., student discounts require proof of student status) or the criteria for handling "exception requests" in price negotiations (discounting criteria as part of the pricing policy layer in the pyramid).
- **Pricing Policy** is a formal definition of the manner in which prices may be altered, e.g., price level or price structure, who can alter it, under what circumstances, and to what degree. The policy sets governance criteria for the whole company regarding price. If the company has a separate Pricing unit, that unit can usually veto any transactions that do not adhere to the policy.
- **Price Level** is the actual amount of charge within the price structure. Competitive analysis can help to determine the price level. At what price are competitors offering their cloud solutions? Does the solution have competitive advantages/ disadvantages that justify price differences? The price level at which we want to offer the product can be set by carefully analyzing these aspects.

The combination of price structure and price level is turned into a price list. Then, a sanity check needs to be performed by calculating the overall revenue from the forecast of the number of customers in different categories and the price list and comparing it to the cost forecast.

## *Decision-making in cloud product pricing*

It is imperative to keep in mind that price does not sell a product. The product must fit the customers' needs. Then, price can become the differentiator between doing nothing, buying a competitor's equally useful product, and buying your product. Pricing too low or discounting too deeply will lead to leaving a lot of "money on

the table", particularly when this becomes predictable. Pricing too high will lead to a weak market share.

There is no silver bullet for pricing of cloud solutions and a lot of factors should be taken into account. The first factor affecting pricing is the type of cloud service. The difference in the types of cloud services is elucidated the most when looking at the economic characteristics of these types (PaaS, SaaS, IaaS) and their associated pricing practices. IaaS pricing is similar to the pricing of commodity goods like water or electricity, while SaaS pricing has more in common with pricing for gym membership. In a similar way to a gym membership, the customer acquires access to the service, most often through a subscription model. Just like gyms, providers often have several subscription options which, in the case of services, differ in terms of features, number of available transactions, and/or the amount of memory provided. Finally, additional services can be purchased separately.

With this variety of options, the situation is quite complicated. The solution here is continuous experimentation on all levels of the pricing pyramid based on the analysis of customers, competitors, and internal resources. The last important thing to remember is that pricing, and in particular the governance rules related to pricing, are an ongoing source of conflict among various business units. Sales has different, short-term objectives than business units responsible for pricing.

# Conclusions

Public cloud computing has rapidly evolved into a cornerstone of modern IT and business operations, with forecasts projecting continued, unprecedented growth well into the next decade. As noted, worldwide spending on public cloud services are rapidly growing and demonstrate that the strategic significance of the cloud is only increasing. The COVID-19 pandemic accelerated this momentum, driving organizations of all sizes — across diverse industries — to prioritize cloud adoption. As a result, many enterprises have overcome initial skepticism in favor of the cloud's compelling value proposition: flexibility, scalability, and cost efficiency unmatched by traditional on-premises architectures.

This surge in demand has facilitated the rise of new service-oriented business models, radically transforming sectors such as finance, healthcare, retail, and telecommunications. Consequently, the cloud computing landscape is characterized by intense competition among both established and "born-in-the-cloud" vendors. Yet, technological excellence alone does not guarantee success. To capitalize on the extraordinary market opportunities, companies must carefully craft clear product visions, robust market positioning, and competitive pricing strategies that align with the fast-paced dynamics of cloud adoption.

This chapter aimed to serve as an essential guide for those involved in designing and executing cloud product strategies. By synthesizing the state-of-the-art research and professional best practices, we have introduced relevant concepts, frameworks, and models, adapted specifically to address the realities of cloud environments. These practices draw upon well-established product management techniques from the broader software industry while acknowledging the unique demands of continuous delivery, evolving customer expectations, and pricing models intrinsic to the public cloud.

Finally, it is important to underscore that cloud product management is far from static. As the cloud paradigm continues to mature and expand, new methodologies and practices will inevitably emerge. Therefore, any product strategy must be treated as a living instrument — it should be regularly assessed, refined, and updated in response to shifting market conditions, technological innovations, and organizational changes. In this rapidly evolving landscape, success will favor those who combine strong foundational knowledge with the agility to continually adapt and innovate.

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