FROM TECHNOLOGICAL DEPENDENCY TO ECONOMIC CAPTURE: THE COST OF CLOUD & SOFTWARE SERVICES INFLATION TO EUROPE

Economic study

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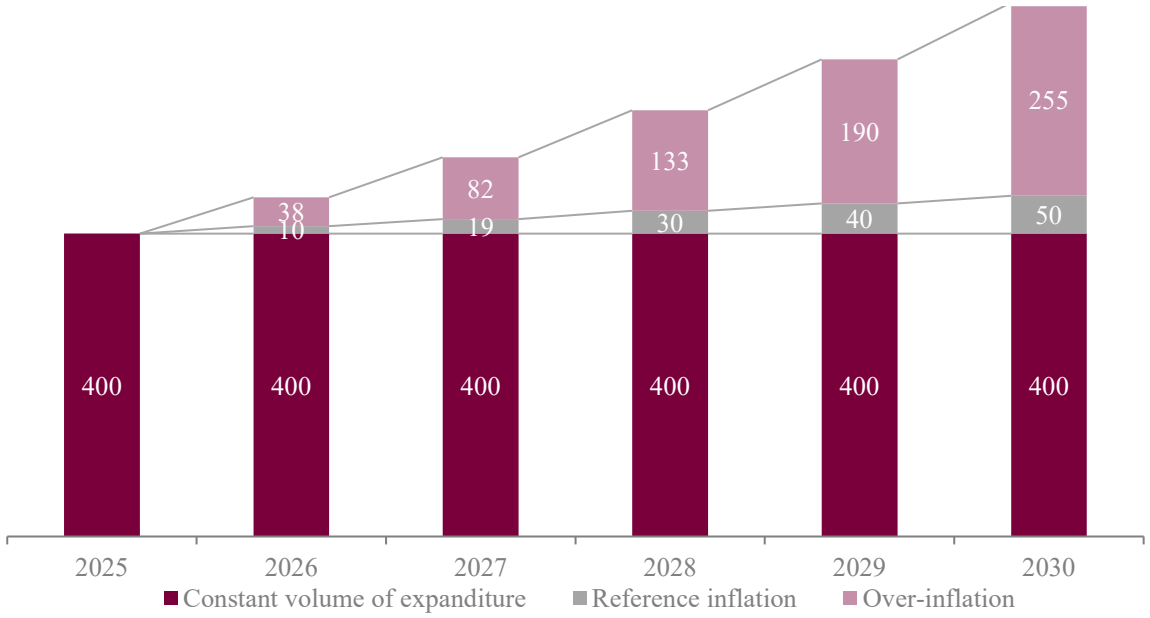
EXECUTIVE SUMMARY

In a study published in April 2025 on behalf of Cigref, Asterès estimated the expenditure of European organisations on cloud and software services at around €400 billion per year for 2024. Of this spending, €330 billion went to US companies, representing 83% of the market share held by a small number of players of a single nationality. It was estimated that 80% of the value created by this expenditure (€264 billion) benefited the US economy, thereby supporting nearly 1.9 million direct, indirect and induced jobs. The key figure quoted was €264 billion in annual purchases of cloud and software services made by European organisations and benefiting the US economy. This represented the share of value added created across the Atlantic, i.e. the direct loss of value for the European economy. The 2025 study had shown that, by 2035, reallocating 15% of this expenditure towards European production would represent a positive economic impact for the European Union of around 463,000 jobs, €37 billion in added value and €16 billion in public revenue.

In this new study, Asterès expands on the initial report[1] by examining the consequences of these technological dependencies through the lens of price increases for cloud and software services, estimating that, assuming constant expenditure volumes (€400 billion), these could result, over the period 2026-2030, in an average additional cost of €140 billion per year. This phenomenon of excessive inflation could have a negative impact on the European economy by depriving it of approximately €107 billion in added value per year – equivalent to 0.6 percentage points of GDP – and 1.4 million jobs by 2030. This inflationary outlook is particularly worrying given that it comes at a time when the European economy is lagging significantly behind in terms of productivity. The Draghi report estimates that an additional €750–800 billion per year is needed to digitise, decarbonise and safeguard the European economy – an effort that is directly compromised by these price increases.

Decomposition of projected cloud software expenditure by European organisations from 2025 to 2030 (in billions of euros)



***Note*: over 5 years, the average of the over-inflation is €140 billion.**

[1] Sylvain Bersinger and Charles-Antoine Schwerer, *Technological dependence on American software and cloud services: an assessment of the economic consequences in Europe* (Asterès, Cigref, 2025), "4.2.3 In-depth study no. 3: The impact of price rises for cloud software services on the health of businesses"

SCOPE OF THE STUDY: PRICE INCREASES FOR CLOUD SOFTWARE

The objective of this study is to assess the economic impact of pricing evolutions in cloud and software services on the European economy by 2030. In its first study, Asterès estimated the economic benefits of a hypothetical European specialisation in the cloud and software sector. Today, Asterès approaches the issue from a complementary angle, assessing the cost of pricing changes in this sector, which is a matter of all the greater importance given that the majority of price increases are captured by non-European providers, without contributing to the European economic tissue. To develop this scenario, Asterès followed a three-step process: a review of the existing literature on the subject; a new survey conducted by 54 European Chief Information Officers (CIOs), members or partners of Cigref, to gather new data; and a model of the economic consequences of these developments for the European economy by 2030, based on the extrapolation of this data. To conclude, three plausible scenarios that could mitigate the modelled trend are discussed.

LITERATURE: PRICING PRACTICES DOCUMENTED SINCE 2021

Price increases in the cloud-software market have been documented since 2021 by the respective studies of Prof. Jenny, Asterès and the consultancy firm Elée[2]. In 2022, a survey conducted by Vanson Bourne in partnership with Asterès revealed, in particular, that 70% of French companies had been offered a bundled package, involving an additional cost of 26% if they declined. Nearly 90% of them were affected, upon renewal, by face value price increases averaging around 6% per year, as part of a three-year renewal cycle. More recently, the consultancy firm Elée has observed annual increases of 10% to 15% in software bills. These increases, which far exceed the benchmark inflation rate for software (around 2% per year in France) are made possible by the high costs of leaving the cloud and the lack of credible alternatives in certain sub-segments, which keep organisations in a position of dependency on their suppliers.

SURVEY: PRICE RISES CONFIRMED, AI TOOLS BECOMING MORE COMMON AND A MODEL CONSIDERED UNSUSTAINABLE

The survey conducted by Asterès among 54 Chief Digital Officers from European businesses and public administrations confirms the scale of price increases, four years on from the first study carried out with Vanson Bourne on this subject. To ensure the sample was representative across sectors, the survey results were adjusted to reflect each sector's weight within the European economy in terms of turnover. Respondents report an average increase in the cost of cloud and software services of 8.7% per year over the last three years, with the largest increase per provider averaging 51%. The outlook is

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[2] Frédéric Jenny, *Cloud Infrastructure Services : An analysis of potentially anti-competitive practices* (CISPE, 2021), https://1c0189d5-591c-4879-8e77-9042791e1e52.filesusr.com/ugd/159979_acbf93e9b2164250a0ca93e753616650.pdf?utm_source=btn; Frédéric Jenny, *Potential Market Distorsions in the Cloud Infrastructure Services Market* (2023); Guillaume Moukala Moukala Same and Charles-Antoine Schwerer, *Cloud computing : préserver la concurrence pour supporter l'économie de la connaissance* (Asterès, 2023), https://asteres.fr/etude/cloud-computing-preserver-la-concurrence-pour-supporter-leconomie-de-la-connaissance/; Charles-Antoine Schwerer and Guillaume Moukala Same, *Le cloud computing: entre contribution à la croissance et pratiques anti-concurrentielles*, ASTERÈS, 19 octobre 2022, https://asteres.fr/etude/le-cloud-computing-entre-contribution-a-la-croissance-et-pratiques-anti-concurrentielles/; *Explosion des coûts logiciels : Comment reprendre la main sur vos budgets ?* (Elée, s. d.), consulted on April 1st 2026, https://elee.com/fr/publications/explosion-des-couts-logiciels-comment-reprendre-la-main-sur-vos-budgets.

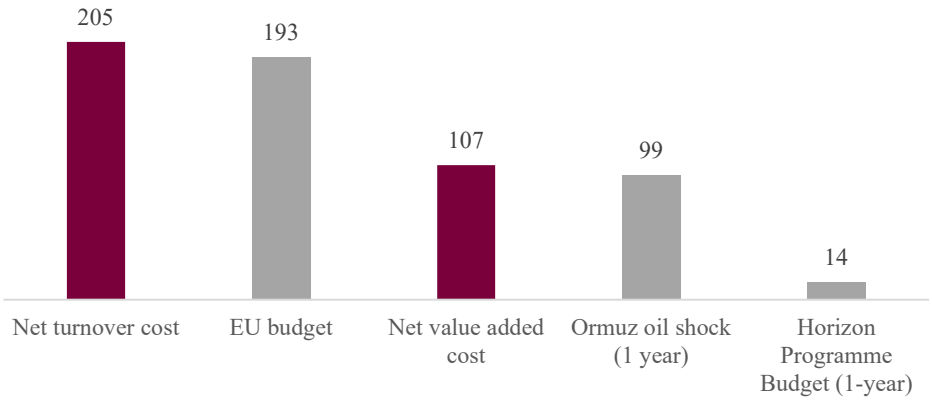
all the more worrying as companies anticipate a rise of +12% per year over the next five years – an acceleration consistent with the increases observed over the last six years. Face value is the primary driver of price increases, ahead of volume and cost structure. Beyond the strictly financial challenge posed by this price inflation, users' characterisation of abusive practices during contract renewals places vendor lock-in mechanisms at the top of the list, ahead of by-design AI, planned obsolescence and bundling. To absorb these additional costs, organisations are prioritising reductions in other digital expenditure (47% of respondents) or increasing their overall digital budget (33%), at the expense of external services, hardware purchases, R&D expenditure, recruitment and salaries. For 71% of them, the five-year inflationary trajectory is considered unsustainable. Finally, artificial intelligence features, promoted by suppliers as justification for the price rises, generate measurable productivity gains for only 23% of respondents; 52% perceive potential that they are unable to quantify, and 25% observe negative or redundant effects. The vast majority of respondents (93%) consider these price increases to be unjustified in light of the observed gains.

ESTIMATE: €140 BILLION IN ADDITIONAL COSTS, A €107 BILLION LOSS IN ADDED VALUE, AND 1.4 MILLION JOBS NOT CREATED FOR THE EUROPEAN ECONOMY BY 2030

By extrapolating the data from the survey, Asterès estimates that this rise in cloud and software service prices will cost the European economy 0.6 percentage points of GDP per year and 1.4 million jobs by 2030. The rise in spending on cloud and software services would represent an additional cost of €140 billion per year on average, of which €93 billion would leave the European economy permanently. This additional cost implies a crowding-out effect on other expenditure with European suppliers, particularly digital services companies (DSCs), or within companies themselves, notably on productive investment and R&D. By modelling the domino effects of this fall in demand, Asterès estimates the total losses at €205 billion in turnover, €107 billion in value added and 1.4 million jobs. By way of comparison, the average annual cost in terms of turnover over five years resulting from these price rises would therefore exceed the EU's annual budget[3] and would represent, in a single year, more than double the amounts invested in innovation and research by Horizon Europe over seven years[4]. This cost of price rises would also be double that of the oil shock caused by the blockade of the Strait of Hormuz, if the rise in the price per barrel were to persist for a year[5]. However, unlike the oil shock, which is a sudden, severe and visible event, these price rises are taking place gradually, silently and repeatedly, year after year, and are currently attracting less attention despite their greater economic scale.

[3] The European Union's annual budget for 2026 amounts to €193 billion.
[4] "Horizon Europe", Consilium, accessed on 17 April 2026, https://www.consilium.europa.eu/fr/policies/horizon-europe/. The total budget for the programme is €95.5 billion over seven years, or €14 billion per year.
[5] Assumptions: EU oil imports of 435 Mt, or 3.1 billion barrels (2025 figures); a €32 rise in the price per barrel due to the closure of the Strait of Hormuz (€61 on 27 February vs. €93 on 6 April, at the height of the crisis).

Annual cost of tariff increases to the European economy, in terms of turnover and value added, compared with public spending and an oil price shock (in billions of euros)



CONCLUSION: A MASSIVE TRANSFER OF WEALTH, THE EFFECT OF WHICH REMAINS UNCERTAIN

This rise in prices represents a paradigm shift for innovation, whose consequences go beyond simple value leakage and crowding-out effects. From an accounting perspective, digital expenditure is shifting from an investment-based approach (CAPEX) to a cost-based approach (OPEX), thereby transferring the initiative for innovation from companies to their cloud-software providers. Price increases thus become a form of tax, serving to collectively fund the deployment of large-scale infrastructure, which is subsequently intended to foster innovation and productivity gains. At the macroeconomic level, the effects will depend on the productivity gains actually generated and on the European economy's ability to capture a share of the value. At the microeconomic level, companies must innovate in terms of organisation and integration, and thus maintain their investment capacity, in order to turn these new tools into a competitive advantage.

In this study, Asterès has examined only the baseline scenario in which inflation continues to accelerate at the rate observed over the last six years, with productivity gains providing only limited compensation, but other scenarios are possible. Without claiming to be exhaustive, Asterès identifies at least three other plausible scenarios that could mitigate this trajectory for the future of the cloud-software market by 2030: a 'productivity leverage' scenario, in which an AI-enabled productivity gain of 0.8% per year (equivalent to two working days) would offset price increases; a 'competitive disruption' scenario, in which the emergence of new players or the spread of generative AI would exert deflationary pressure on the cloud-software market, similar to what occurred in the telecommunications sector following the arrival of Free, leading to a 45% drop in prices over five years; and finally a 'competitiveness lever' scenario, in which a proactive European policy to support the digital industry would limit the crowding-out effects on the European economy (for example, a 15-point increase in the market share of European suppliers, would help to preserve 120,000 jobs and €9 billion in added value per year).

PREAMBLE

The consultancy firm Asterès was mandated by Cigref to study the cost of price increases for cloud and software services at European level.

The economists at Asterès were granted complete independence in conducting this study. The sources of all the data used are available in the study.

The views expressed here are solely those of the authors. The document was written by Guillaume Moukala Same and Charles-Antoine Schwerer, economists at Asterès.

1. SCOPE OF THE STUDY: THE ECONOMIC IMPACT OF PRICE INCREASES FOR CLOUD AND SOFTWARE SERVICES

1.1 OBJECTIVE: ESTIMATE THE ECONOMIC IMPACT OF PRICE INCREASES FOR CLOUD AND SOFTWARE SERVICES BY 2030

This study assesses the economic impact of price increases for cloud and software services on the European economy by 2030. Cloud and software services encompass all cloud services (IaaS, PaaS, SaaS), as well as software on-premises or hosted in the cloud. The significant price rises for these services are a well-known fact amongst user companies and are beginning to be documented in the economic literature.

The race for artificial intelligence is exacerbating this inflationary trend for at least two reasons. Technically, AI technologies require computing, storage and network capacity that only a handful of dominant players are able to provide. Economically, the massive investments made by these same players in GPUs, data centres and energy infrastructure must be recovered, which is reflected in prices. However, the economic consequences of these pricing practices have not yet been the subject of a comprehensive analysis at European level – a blind spot that is all the more worrying given that a significant portion of the additional costs is captured by non-European suppliers and flows out of the European economy. This study aims to fill this gap and thus complements the work of Asterès and Cigref on the European Union's technological dependencies on US cloud and software services. [6]

1.2 GENERAL APPROACH: A LITERATURE REVIEW, A SURVEY AND ECONOMIC MODELLING

The study is conducted in three stages: a review of the literature, a survey of European digital directors, and a modelling of the economic consequences up to 2030. Asterès begins by summarising the findings already identified in the literature, namely organisations' dependence on their suppliers—particularly due to high exit costs and limited alternatives—and the price increases observed during recent contract renewals. Asterès then updates and supplements this data through a new survey of Cigref members and their European partners. The aim of this survey is threefold: to confirm the current state of pricing trends, to collect data on the budgetary impacts of these trends, and to gather CIOs' views on the value of artificial intelligence features – as the economic impact of price rises is not the same if they are offset by significant productivity gains. Finally, Asterès estimates the cost that these price increases are likely to represent for European businesses and public administrations, and for the European economy by 2030, by extrapolating the survey data and modelling the domino effects.

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[6] Sylvain Bersinger and Charles-Antoine Schwerer, *Technological dependence on American software and cloud services: an assessment of the economic consequences in Europe* (Asterès, Cigref, 2025), https://www.cigref.fr/technological-dependence-on-american-software-and-cloud-services-an-assessment-of-the-economic-consequences-in-europe

2. LITERATURE: LACK OF COMPETITION IS DRIVING EXCESSIVE INFLATION IN THE CLOUD AND SOFTWARE MARKET

2.1 CAUSES: A STRUCTURALLY UNCOMPETITIVE MARKET

Competition in the cloud-software market is limited, leaving users dependent on their providers. This lack of competition, which attracted the attention of the French and British authorities in 2023 and 2025[7], is mainly due to high cloud exit costs, but also, in certain sub-segments, to the lack of credible alternatives at scale. These high 'exit costs' thus limit users' ability to switch providers[8]. These costs are technical (complexity of data migration, interoperability issues), commercial (double billing during the transition) and organisational (staff having to learn new tools). They are exacerbated by the vertical integration of the main providers, which link software, infrastructure and platforms together. In the Asterès – Vanson Bourne survey conducted in February 2022, the CIOs surveyed estimated this exit cost at 15% of their IT budget[9]. Furthermore, in certain sub-segments, there are few credible alternative providers. The software thus becomes indistinguishable from the market, and exit costs become almost theoretical: there is sometimes no alternative of equivalent quality to migrate to. The costs of in-house redevelopment or the integration of open-source components are not included in the scope of the analysis.

2.2 CONSEQUENCES: PRICE INCREASES WELL ABOVE THE BENCHMARK INFLATION RATE

This lack of competition gives suppliers such market power that they can impose above-normal price inflation in the cloud-software market. Price rises in the cloud-software market were documented by Prof. Jenny in 2021 and 2023[10], by Asterès between 2022 and 2023[11] and, more recently, by the consultancy firm Elée[12]. These price rises most often take the form of face price increases or bundled sales and, according to Elée, result in a 10% to 15% annual increase in software bills, "solely due to inertia" [13]. Consequently, the software segment has been the leading contributor to the surge in global digital spending since 2020 (see *graph* below).

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[7] « Informatique en nuage (« cloud ») : L'Autorité de la concurrence rend son avis sur le fonctionnement concurrentiel du secteur du cloud », Autorité de la concurrence, June 29 2023, https://www.autoritedelaconcurrence.fr/fr/communiques-de-presse/informatique-en-nuage-cloud-lautorite-de-la-concurrence-rend-son-avis-sur-le; *Cloud Services Market Investigation* (Competition & Market Authority, 2025), https://www.gov.uk/cma-cases/cloud-services-market-investigation.

[8] Paul Klemperer, "Markets with Consumer Switching Costs", *The Quarterly Journal of Economics* 102, nº 2 (1987): 375, https://doi.org/10.2307/1885068.

[9] Guillaume Moukala Same and Charles-Antoine Schwerer, *Cloud computing : préserver la concurrence pour supporter l'économie de la connaissance* (Asterès, 2023), https://asteres.fr/etude/cloud-computing-preserver-la-concurrence-pour-supporter-leconomie-de-la-connaissance/.

[10] Jenny, *Cloud Infrastructure Service: An analysis of potentially anti-competitive practices*; Jenny, *Potential Market Distorsions in the Cloud Infrastructure Services Market*.

[11] Schwerer and Moukala Same, « Le cloud computing »; Moukala Same and Schwerer, *Cloud computing : préserver la concurrence pour supporter l'économie de la connaissance*.

[12] *Explosion in software costs.*

[13] *Explosion in software costs*.

- **With regard to face price increases, the Vanson Bourne–Asterès survey, conducted in 2022, revealed that nearly 90% of French companies were affected**, with increases of 3% to 6% per year, depending on the assumed contract duration, i.e. several percentage points higher than inflation[14]. These findings supported the evidence gathered by Prof. Jenny, according to which software licence prices are 'initially competitive' but are almost systematically increased at the time of renewal[15] (a 'vendor lock-in' strategy) [16]. In 2023, Asterès estimated the cost of price increases for French companies at between €250 million and €540 million, depending on the assumptions[17]. Since then, the consultancy Elée has noted that the emergence of artificial intelligence acts as a "new commercial frontier", with each innovation justifying an additional cost[18].

- **With regard to bundled offerings, the Vanson Bourne–Asterès survey, conducted in 2022, revealed that 70% of French companies had already been offered a bundled package**, with an average cost difference of 26% and up to 80% for some respondents[19]. These findings are supported by Prof. Jenny's analysis, which, by examining the licensing policies of certain suppliers, quantified increases of up to 90% for Office 365 and 300% for SQL Server[20], as well as by that of the consultancy firm Elée, which illustrates this type of practice using the example of VMware: "the consolidation of thousands of product lines into around a hundred bundles has led to sharp price increases, regularly exceeding 40%, and sometimes doubling the cost" [21]. In 2023, Asterès estimated the additional cost resulting from the refusal to subscribe to these bundled offers at €146 million per year for French companies[22].

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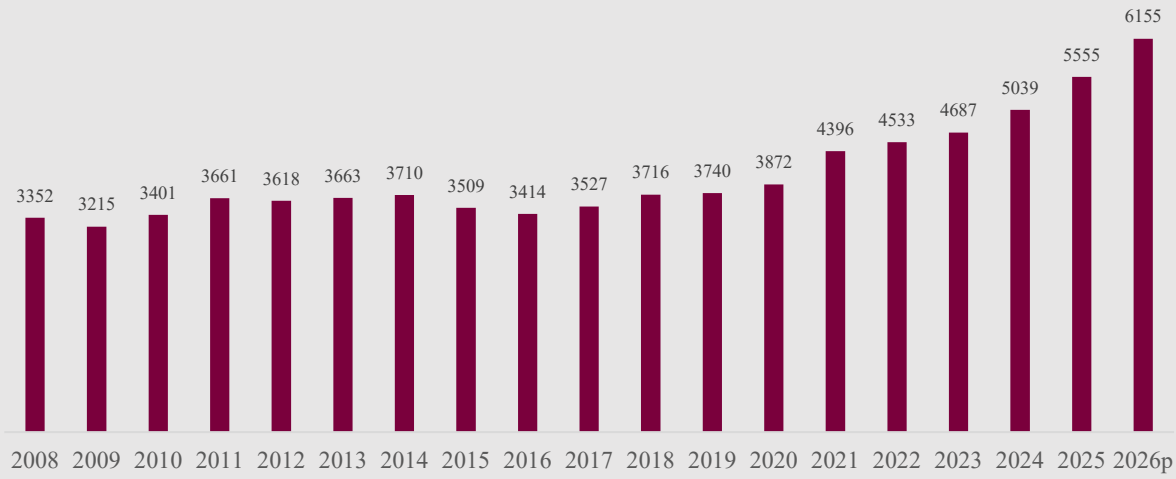
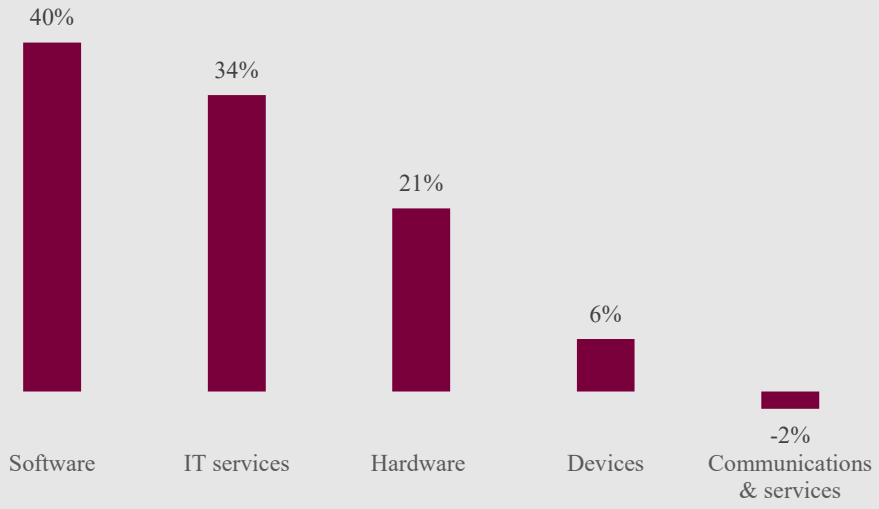
[14] Schwerer and Moukala Same, « Le cloud computing ».
[15] Jenny, *Cloud Infrastructure Services: An analysis of potentially anti-competitive practices*.
[16] Justice Opara-Martins and al., "Critical analysis of vendor lock-in and its impact on cloud computing migration: a business perspective", *Journal of Cloud Computing* 5, nº 1 (2016): 4, https://doi.org/10.1186/s13677-016-0054-z.
[17] Moukala Same and Schwerer, *Cloud computing : préserver la concurrence pour supporter l'économie de la connaissance*.
[18] *Explosion in software costs.*
[19] Guillaume Moukala Same and Charles-Antoine Schwerer, *Le cloud computing : entre contribution à la croissance et pratiques anti-concurrentielles* (Asterès, 2022), https://asteres.fr/etude/le-cloud-computing-entre-contribution-a-la-croissance-et-pratiques-anti-concurrentielles/.
[20] Jenny, *Cloud Infrastructure Services: An analysis of potentially anti-competitive practices*.
[21] *Explosion in software costs.*
[22] Moukala Same and Schwerer, *Cloud computing : préserver la concurrence pour supporter l'économie de la connaissance*.

Global digital spending (in billions of dollars).



Sources: Gartner, February 2026, Elée synthesis[23].

Contribution of the various segments to the growth in global digital spending between 2020 and 2026.



Sources: Gartner, February 2026, synthesis by Elée[24] and calculations by Asterès.

[23] *Note stratégique - Tendances du marché logiciels & Cloud | Elée* (Elée, 2026), https://elee.com/fr/publications/note-strategique-tendances-du-marche-logiciels-cloud.
[24] *Note stratégique - Tendances du marché logiciels & Cloud | Elée*.

3. SURVEY: PRACTICES THAT STILL APPLY TODAY BUT ARE UNSUSTAINABLE IN THE MEDIUM TERM

3.1 METHOD: A SURVEY OF AROUND 50 CIGREF MEMBERS AND PARTNERS

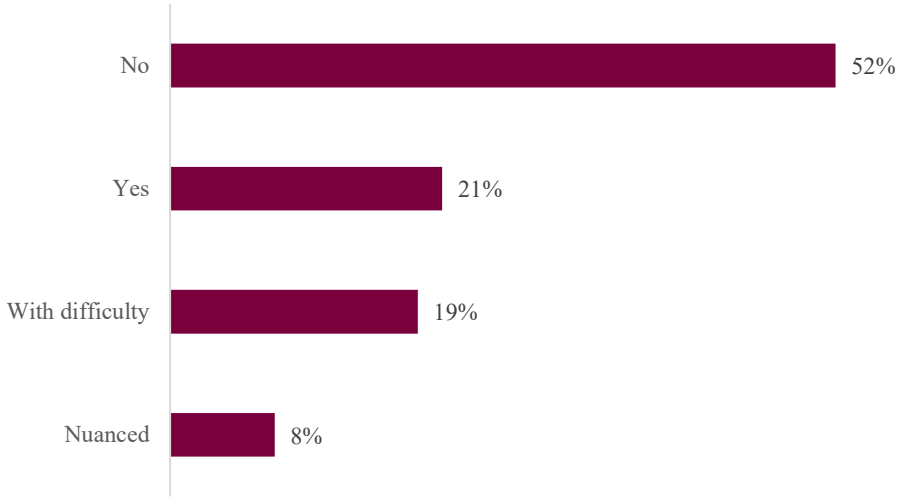
Asterès conducted a survey of Digital Directors from 54 European companies and public sector organisations that are members or partners of Cigref. The questionnaire comprises 22 questions covering the structure of digital and cloud budgets, pricing trends by software type, the implications of these price rises, and perceptions of medium-term risks. Respondents came from 14 sectors (see *graph* below) and three countries (France, Belgium and the Netherlands). To correct for sectoral representativeness biases in the sample, the results were weighted according to each sector's economic weight within the European economy. For multiple-choice questions, the results were normalised to 100 to reflect the distribution across the different responses. The survey has several methodological limitations:

- Firstly, the size of the sample means that some sectors have only one, or even no, respondents. The telecommunications sector, in particular, had no respondents, and its weighting has been redistributed to the sectors that are represented.
- Secondly, the sample consists exclusively of French, Belgian and Dutch companies. Asterès assumes that the responses can be interpreted as relevant at European Union level.
- Finally, the survey is also subject to self-selection bias: the companies most affected by price rises are likely to be the most inclined to respond, which may lead to an overestimation of the scale of the observed increases. Consistency with other surveys and data therefore supports the analysis of the questionnaire.

3.2 PRICE INCREASES: INFLATION HAS BEEN ON THE RISE AND ACCELERATING FOR SEVERAL YEARS

Respondents report an average annual increase in the cost of their cloud and software services of 8.7% over the last three years, and anticipate an annual rise of 12% over the next five years. The largest increase at renewal averages 51%, with extreme cases reported at 100%, and even 200–300% for some respondents. These figures confirm the acceleration in price inflation since the first Asterès – Vanson Bourne survey in February 2022, which at the time estimated increases at 5.8% per year[25]. The rate of inflation has thus risen by nearly three percentage points in four years, and CIOs' expectations for the next five years are in line with this trend[26]. Only 21% of respondents consider this inflation to be sustainable, while 71% consider it difficult or impossible to sustain. A minority of respondents appear more nuanced ("it depends") or are unable to give a definitive answer. The most significant increases primarily concern productivity and collaboration software, as well as technical infrastructure and security software. Regarding the mechanisms driving these increases, the facial price effect is the most common (average score of 2.0), ahead of the volume effect (3.0), the cost structure effect (3.6), the scope effect, notably via AI by-design (3.6), the discount reduction effect (4.6) and the change in metrics effect (4.9). These price increases are based on potentially abusive commercial practices (see appendices): vendor lock-in (40% of respondents say they have been victims of this in the last three years), AI by design (32%), planned obsolescence (30%), bundling (26%) and the reduction of metrics (21%).

Financial sustainability of tariff increases over the next five years.



n=52

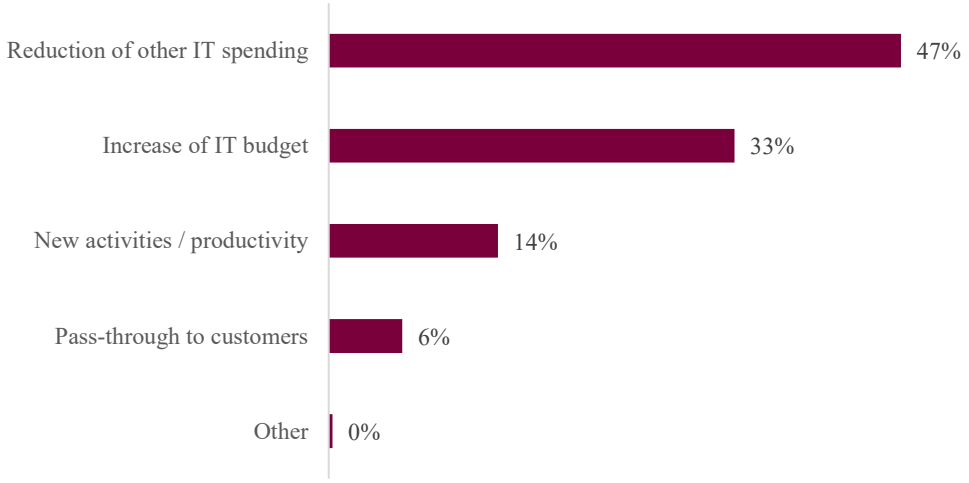
[25] Assuming the most plausible scenario of renewal every three years. Schwerer and Moukala Same, « Le cloud computing ».

[26] If the average acceleration in the inflation rate observed between the two Asterès surveys (12.3% per year) were to continue over the period 2026–2030, the inflation rate would reach 15.5% in 2030 and stand at an average of 12.4% over the period — a level consistent with the average forecast of CIOs (12.0% per year).

3.3 Impact on expenditure: a crowding-out effect on intermediate consumption, investment and salaries

In the majority of cases, price increases result in reductions in other areas of expenditure. The digital budget accounts for 4.1% of the turnover of the private organisations surveyed (or of their contribution to Gross Domestic Product, in the case of public sector administrations). 28% of this budget is spent on cloud and software services, and based on current inflationary trends, this proportion could rise to 42% by 2030. This expenditure is highly concentrated: the top five providers alone account for 53% of respondents' cloud software budgets, with Microsoft being cited by almost all of them. Price increases for cloud software have profoundly altered the structure of organisations' digital budgets over the last five years, with the average share of OPEX rising to 50%, which respondents describe as a 'sharp increase'. To absorb these increases, 47% of respondents say they are cutting back on other digital expenditure, 33% are increasing their overall digital budget, 14% are achieving productivity gains, and 6% are passing on the cost to customers. For organisations reducing their digital budget, the top priority for spending reductions is external services from digital service providers (57%), ahead of hardware purchases (27%) and IT human resources (13%). For organisations increasing their digital budget, the other areas where spending is being cut as a priority are R&D and capital expenditure (32%), cash flow and margins (26%), recruitment (21%) and pay rises (12%). The survey highlights that price rises, accompanied by a shift in investment towards intermediate consumption, have a significant crowding-out effect on other expenditure, and thus a domino effect on the economy.

Financing price increases.

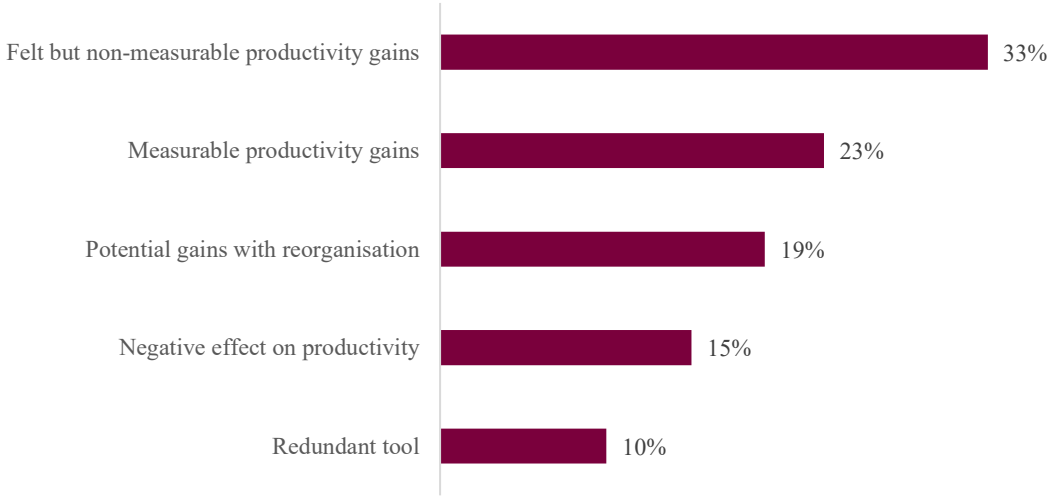


n = 54

3.4 IMPACT ON PRODUCTIVITY: FOR THE MAJORITY OF RESPONDENTS, THE BENEFITS OF AI TOOLS REMAIN THEORETICAL

For the vast majority of respondents, the benefits gained from artificial intelligence tools do not justify the price increases. The AI features offered by cloud-software providers constitute an additional layer deployed on top of existing cloud infrastructures, whose pricing dynamics are consistent with those documented for cloud software since 2021. At this stage, the productivity gains generated by these tools, which are imposed in nearly 40% of cases, remain theoretical for the vast majority of respondents: 52% are unable to measure current or potential gains (whether already experienced locally today or anticipated for the future), due to their diffuse nature (33%) or the lack of a fundamental reorganisation of working methods (19%); 25% report negative effects on productivity or redundancy with other tools; and only 23% observe immediate and measurable effects on productivity. Ultimately, among the 56% of respondents who already perceive a benefit (whether measurable or not), 11% consider the overall benefits sufficient to justify price increases. These conclusions are not definitive: perceptions may become more refined as the integration of AI into business processes matures and value measurement tools are refined.

Perceptions of the usefulness of AI use cases.



n=38

4 PROJECTION: A NET LOSS OF €107 BILLION IN VALUE ADDED AND 1.4 MILLION JOBS FOR THE EUROPEAN ECONOMY

4.1 PRICE RISES: AN ADDITIONAL COST OF €140 BILLION A YEAR ON AVERAGE

4.1.1 Method: project the average net inflation-adjusted cost over five years, based on the €400 billion spent annually by the EU on cloud and software services

Asterès estimates the additional cost at two levels: that of European businesses and public administrations, and that of the European economy as a whole. These two estimates differ because the price increases, which represent a net cost for the organisations affected, do not constitute a net cost for the European economy as a whole: part of the increase goes to European suppliers, while another part is reinvested in Europe by non-European suppliers.

- **As a first step, Asterès estimates the additional cost of price rises for European businesses and public administrations over the next five years**. For cloud-software expenditure by European businesses and public administrations, **Asterès uses the figure of €400 billion, estimated in the first Asterès–Cigref study** based on public data and interviews, and confirmed by the survey conducted as part of this second study[27]. The volume of cloud-software expenditure is then projected over five years, on a like-for-like basis, by applying the price increases anticipated by members over the next five years (see box below), net of the benchmark software inflation rate[28]. Asterès then calculates the average annual net additional cost over the period.
- **Secondly, Asterès identifies the share of the additional cost that constitutes a net loss of value for the European economy**. The cost increases for European businesses and public administrations correspond directly to an increase in revenue for cloud-software providers. Asterès assumes that 34% of this increased revenue is reinvested by providers in the European economy. Indeed, the first Asterès–Cigref study established that, for every €1 spent on cloud software, 17 cents goes directly to European providers, and a further 17 cents is reinvested in Europe by non-European providers[29].

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[27] In the initial study, this figure—estimated on the basis of interviews—appeared consistent with existing sources for the European cloud-software market (between €300 billion and €550 billion) and the global market (€1 trillion, of which the European market is estimated to account for one-third). Furthermore, by applying the questionnaire responses to large European companies and public administrations, Asterès arrives at a cloud software budget of €206 billion. This result is consistent with the figure used, given that large companies account for 49% of European value added (Source: Eurostat).

[28] This inflation is measured by the producer price index for software services (CPF 58.2) published by INSEE. The average over the last three years is 2.4% per year. Eurostat publishes an equivalent index at European level (SPPI, NACE J58), but this aggregates software publishing with book and periodical publishing, making it less relevant for our analysis. The French index was selected on the basis that the main cloud software publishers operate with largely uniform pricing structures across Europe, making it a reasonable proxy for the EU as a whole.

[29] Bersinger and Schwerer, *La dépendance technologique aux softwares & cloud services américains*.

Box. Will inflation rise over the next five years?

There are two reasons for projecting an acceleration in cloud-software inflation over the next five years (+12.0% per year, compared with +8.7% per year over the last three years).

Firstly, this acceleration is already ongoing: the inflation rate has risen from 5.8% per year in the 2022 Vanson Bourne–Asterès survey to 8.7% per year in the present survey, representing an increase of nearly three percentage points over four years, or a 12% annual rise in the inflation rate itself. Extending this trend automatically leads to an average inflation rate of 12.0% per year between 2026 and 2030, a level consistent with the spontaneously expressed expectations of the Digital Directors surveyed.

Secondly, AI represents a new driver of price increases, following on from previous factors (the move to the cloud, bundled sales, and licensing reforms). GitHub announced in April 2026 that its Copilot billing model would switch to a token-based pricing structure, effectively indexed to the pure pay-per-use billing of AI providers and likely to triple costs[30], as evidenced by Uber's total annual AI budget being exhausted within four months; Anthropic has also adopted this billing model for its Enterprise version and modified its tokeniser on Opus 4.7, increasing the volume of billed tokens by 35%[31].

Added to this is the possibility of a price increase that could accelerate, although it is not yet possible to make definitive statements on the matter, given that AI providers' business models remain unstable or unclear. To this point, and without being able to go into further detail, three observations can be made to inform the discussion:

1. In 2025 alone, nearly $1 trillion was invested in the AI market (mainly in infrastructure and energy);

2. The pricing of AI services does not reflect their actual costs;

3. Suppliers' KPIs focus more on market capitalisation – through market penetration – than on operating margins.

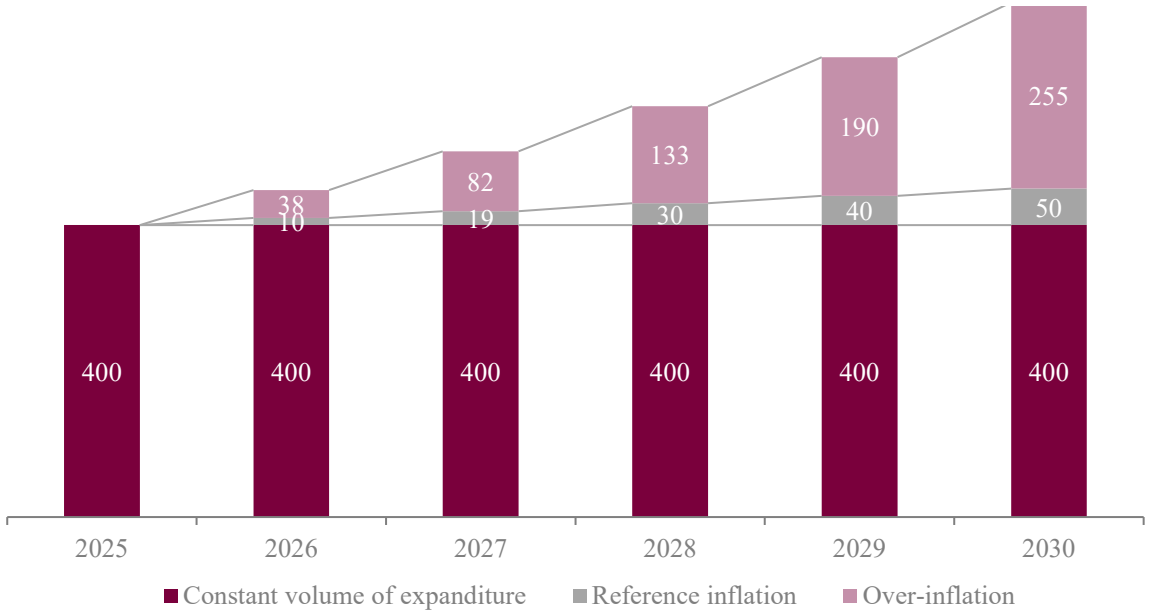
[30] According to an analysis by the think tank Cast x Cigref.

[31] "Claude Opus 4.7 Pricing 2026: The Real Cost Story Behind the "Unchanged" Price Tag", https://www.finout.io/blog/claude-opus-4.7-pricing-the-real-cost-story-behind-the-unchanged-price-tag

4.1.2 Results: a cost increase of €140 billion, including €93 billion in value leakage

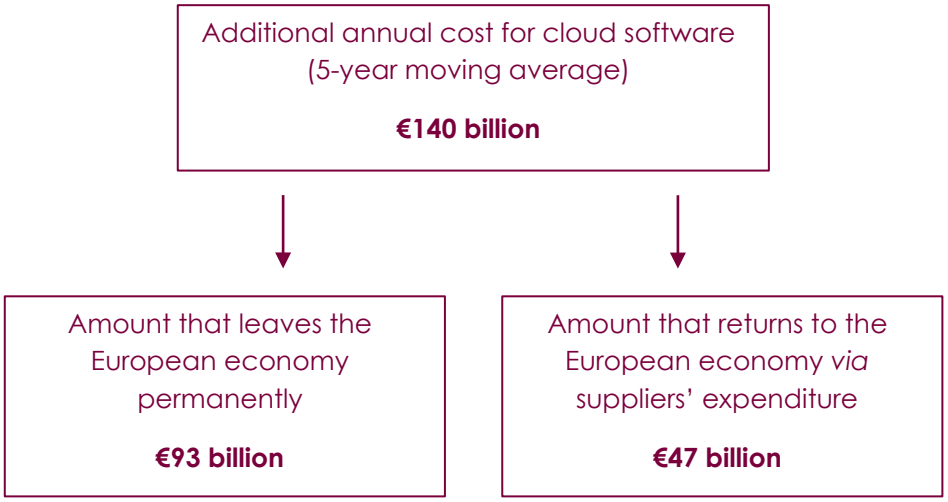
According to Asterès' calculations, the price rises would cost European businesses and public administrations an average of €140 billion a year over the next five years, including €93 billion in net losses across the European economy. The remainder of the additional cost, amounting to €47 billion, represents a revenue gain for European cloud-software providers or is reinvested in Europe by US providers.

Breakdown of projected cloud software expenditure by European organisations from 2025 to 2030 (in billions of euros



***Note*: over 5 years, the average of the over-inflation is €140 billion.**

Breakdown of the additional cost of cloud-software services between the portion that leaves the EU and the portion that returns to the EU.



4.2 CROWDING-OUT EFFECT: €65 BILLION IN EUROPEAN SPENDING SACRIFICED

4.2.1 Method: assessing the crowding-out effect on the European economy

Asterès assesses the crowding-out effect on the European economy by dividing the cost increases by method of financing and including the share of imports. In this study, the crowding-out effect refers to the total expenditure and investment that companies give up in order to finance price increases for their cloud and software services.

This crowding-out effect relates to increases financed by reductions in other digital expenditure items or by an increase in the digital budget where this replaces another expenditure item. For external services and hardware purchases, the imported share is deducted based on sectoral import rates, so as to account only for the portion of these expenditures that would have actually benefited European players[32]. Other funding methods, notably passing on costs to customers, are in the minority and their effects are not assessed in this study.

4.2.2 Results: a crowding-out effect of €65 billion on the European economy

The crowding-out effect on spending and investment in Europe amounts to an average of €65 billion per year. Of the €140 billion in cost increases that European organisations would face, €108 billion would be financed through reallocation or increases in the IT budget, €20 billion through productivity gains, €8 billion by passing on costs to customers, and €4 billion through 'other' means.

Asterès estimates that 60% of this unrealised expenditure would have been spent with European suppliers or internally. This overall proportion of 60% reflects the crowding-out effect in Europe (€65 billion), based on the total crowding-out effect of European organisations' expenditure (€108 billion).

It should be noted that Asterès does not quantify the effect of cascading price increases on customers. In detail, the unrealised expenditure breaks down as follows:

- €37 billion in expenditure on digital services, of which €23 billion would have been spent in Europe.
- €26 billion in HR expenditure, of which over €8 billion in recruitment costs and over €8 billion in salary increases in Europe.
- €24 billion in R&D expenditure, of which €16 billion would have been spent in Europe.
- €18 billion on equipment purchases, of which €7 billion is estimated to have been spent in Europe.
- €3 billion on training expenditure, of which €2 billion is estimated to have been spent in Europe.

[32] Source: Eurostat employment table

Funding of the additional costs by European organisations.

Unrealised expenditure by European businesses and public administrations

€108 billion, of which:

DSC	HR	R&D	Hardware	Training
€37 billion	**€26 billion**	**€24 billion**	**€18 billion**	**€3 billion**

+

Productivity gains	Impact on customers	Other financing options
€20 billion	€8 billion	€4 billion

=

€140 billion in additional costs

Losses to the European economy resulting solely from the expenditure of European organisations.

€65 billion, of which:

DSC	HR	R&D	Hardware	Training
€23 billion	**€17 billion**	**€16 billion**	**€7 billion**	**€2 billion**

4.3 ECONOMIC IMPACT: A LOSS OF €107 BILLION IN VALUE ADDED PER YEAR AND 1.4 MILLION JOBS FOR THE EUROPEAN ECONOMY

4.3.1 Method: assessing the total economic impact of the crowding-out effect in Europe

Asterès models the direct, indirect and domino effects of the crowding-out effect on the European economy. Asterès distinguishes between the loss of business for French companies and public administrations (direct effect), the loss of business for their tier-1 suppliers (indirect effect), and the loss of business for the rest of the European economy (domino effect). Each of these effects is quantified in terms of turnover, value added and jobs:

- **Unrealised recruitment corresponds to a reduction in direct activity for European businesses and public administrations.** Drawing on Eurostat's national accounts, unrealised HR expenditure (recruitment only) is converted into jobs using the average wage in the European economy, then into value added via labour productivity, and finally into turnover via the value-added rate.
- **Unrealised external expenditure leads to a loss of activity among first-tier suppliers.** Unrealised expenditure by European businesses and public administrations corresponds to a loss of turnover for their suppliers, which is then converted into value added and jobs via sectoral ratios derived from national accounts.
- **This unrealised expenditure and unpaid wages then have domino effects across the entire European economy**. Unrealised activity spreads in a cascade throughout the entire supply chain; this is the domino effect. The decline in activity among digital firms, for example, affects their subcontractors, who in turn pass it on to their own subcontractors, and so on. At each stage, part of the value is taxed or flows abroad, until the effect is exhausted. Similarly, a portion of wages that is not paid out is not spent, which reduces aggregate demand in the economy; this is the induced effect. The Asterès Impact Model (MIA), based on the OECD's input-output tables, enables the tracking of all these economic flows over a total period of five years.

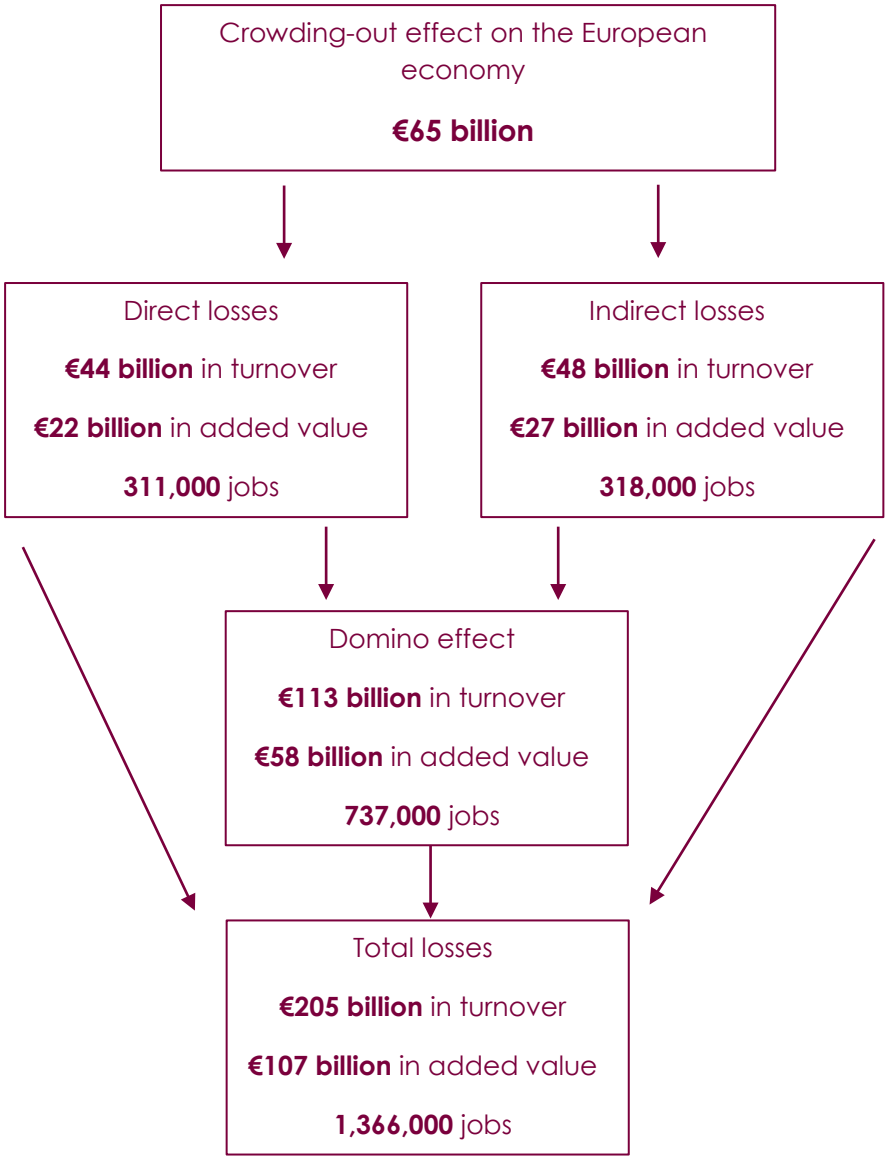
4.3.2 Results: a loss of €107 billion in added value and 1.4 million jobs

According to Asterès' modelling, price rises for cloud software could cost the European economy €107 billion in added value per year – equivalent to 0.6 percentage points of GDP – and 1.4 million jobs by 2030.

In terms of turnover, the total impact is divided between €44 billion in losses among businesses and public administrations themselves (direct losses), €48 billion in losses among their tier-1 suppliers (indirect losses), and €113 billion in losses across the rest of the European economy (domino effects).

In terms of value added, the impact is broken down into €22 billion in direct losses, €27 billion in indirect losses and €58 billion in cascade losses. Finally, in terms of employment, the impact is broken down into 311,000 direct jobs, 318,000 indirect jobs and 737,000 cascade jobs.

Economic consequences of the crowding-out effect.



5 CONCLUSION: A MASSIVE TRANSFER OF WEALTH, WHOSE EFFECT REMAINS UNCERTAIN

5.1 SYNTHESIS: PRICE RISES COULD HAVE REPERCUSSIONS ACROSS THE ENTIRE EUROPEAN ECONOMY

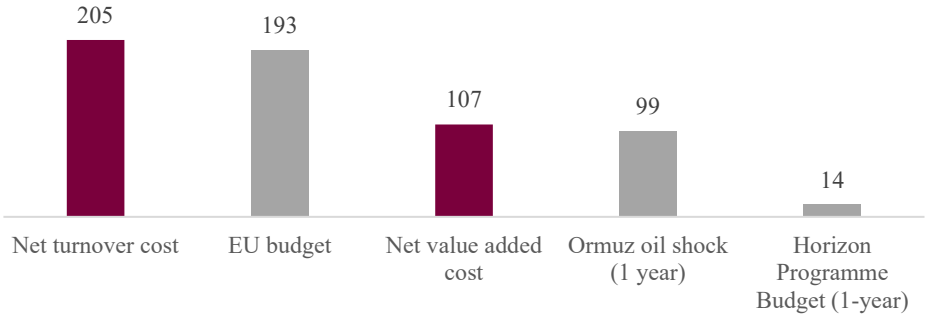
European organisations pay more each year for access to cloud and software services, whose prices are rising well above the rate of inflation, resulting in losses for the European economy as a whole. A survey conducted by Asterès among 54 Digital Directors from European businesses and public administrations confirms an average annual increase of 8.7% over the last three years – more than three times the benchmark software inflation rate (2.4%) – and confirms that this inflation is accelerating (+12% per year on average over the next five years). To absorb these additional costs, organisations are prioritising reducing their digital expenditure – either directly by cutting the digital budget, or indirectly by increasing the IT budget at the expense of other areas, notably R&D and productive investment. At the same time, the AI features offered or imposed by suppliers generate measurable productivity gains for only 23% of respondents (whilst 25% report negative or redundant effects) and 14% state they are financing price increases through productivity gains. Extrapolating from this data, Asterès estimates the additional cost of these price rises at €140 billion per year, of which €93 billion would be permanently lost to the European economy. Of this €93 billion, €65 billion would correspond to expenditure not made with European businesses (digital services, R&D equipment, recruitment, training). By modelling the domino effect of this fall in demand on the European economy, Asterès estimates the net impact of the price rises at €205 billion in turnover, €107 billion in value added (equivalent to 0.6 percentage points of GDP), and 1.4 million jobs. By way of comparison, the average annual cost of tariff increases in terms of turnover is therefore higher than the EU's annual budget[33] and represents, in a single year, more than double the amounts invested in innovation and research by Horizon Europe over seven years[34]. The cost of tariff increases is equivalent to twice the economic impact of the oil shock caused by the blockade of the Strait of Hormuz, if the rise in the price per barrel were to persist for a year[35]

[33] European Union's annual budget in 2026 amounts to €193 billion

[34] Consilium, "Horizon Europe". The programme's total budget amounts to €95.5 billion over seven years, or €14 billion per year.

[35] Calculation assumptions: EU oil imports of 435 Mt, or 3.1 billion barrels (2025 data), a €32 rise in the price per barrel due to the closure of the Strait of Hormuz (€61 on 27 February vs. €93 on 6 April, at the peak of the crisis).

Annual cost of tariff increases to the European economy, in terms of turnover and value added, compared with public spending and an oil price shock (in billions)



5.2 ANALYSIS: THESE INCREASES REFLECT THE SHIFT TOWARDS A MODEL OF SHARED DIGITAL INFRASTRUCTURE

Beyond the figures, these price rises reflect a more profound shift in the business model, the implications of which remain uncertain. Under the traditional model, companies invested directly in technology (in-house software development, R&D, recruitment of engineers, training) to equip themselves with tools tailored to their specific needs and to set themselves apart from their competitors. The model that is emerging is fundamentally different: companies are facing price increases so that innovative infrastructure can be developed and made available to them by a limited number of suppliers. This logic is similar to that of taxation, in which companies collectively contribute, via price increases, to the shared financing of innovative infrastructure. Technological investment is not disappearing but is changing hands, and this shift is altering the competitive dynamics between companies. When the same technological building blocks (language models, AI-enhanced productivity tools, computing power) are made available to all players, as a equalizing effect, the competitive advantage no longer lies in access to technology but in the ability to exploit it better than one's competitors: integration into business processes, team training, and proprietary developments built on these shared infrastructures.

The trade-offs at the start of the 'move-to-cloud' era remain highly relevant today, and it is difficult to predict which of the two models is more effective in the long term: direct investment in technology with tool differentiation, or shared financing with usage differentiation: shared resources provided by suppliers generate considerable economies of scale and enable investments that no single company could afford on its own, but they reduce the diversity of technological approaches without, a priori, guaranteeing a more optimal allocation of resources.

5.3 OPENING: SEVERAL SCENARIOS FOR MITIGATING THE COST OF PRICE INCREASES BY 2030

Asterès has developed a model of a single trajectory in which inflation continues to accelerate at the rate observed over the last six years, whilst being only slightly offset by productivity gains. Without claiming to be exhaustive, Asterès identifies at least three other plausible scenarios that could mitigate this trajectory for the future of the cloud-software market by 2030:

- **In a 'productivity leverage' scenario, the gains delivered by AI would offset or even more than offset the costs**. This scenario is not unlikely: whilst 23% of respondents are already measuring immediate productivity gains, 52% are unable to measure potential gains (whether currently felt locally or anticipated for the future), due to a lack of suitable metrics or insufficient integration into business processes. For the productivity gains enabled by AI tools to fully offset the annual additional cost of €140 billion, these tools would need to generate a productivity gain of just 0.8% per year, which represents two working days[36]. This threshold corresponds to the upper limit of academic estimates, which range from less than 0.1% productivity gain per year for Acemoglu[37], to 1.3% per year for Aghion and Bunel[38]. Only the most optimistic scenario would therefore allow price increases to be neutral for users.
- **In a 'competitive disruption' scenario, the emergence of new players would exert deflationary pressure on the software market.** This deflationary pressure could result from the spread of generative AI, now capable of replicating any enterprise software in record time (the 'SaaSpocalypse'), or from the arrival on the market of a competitor with the firm intention of undercutting prices. The first scenario resembles a classic case of creative destruction in which certain sectors grow at the expense of others: user organisations would certainly benefit from cost reductions and could reinvest these savings, but the software sector, which is worth between €150 billion and €300 billion in Europe[39], would contract significantly. In the second scenario, the sector, having become an essential infrastructure, would restructure itself, much like the telecommunications sector did with the arrival of Free, which led to a 45% drop in prices over five years[40].
- **Finally, in a 'competitiveness lever' scenario, redirecting expenditure towards European players that create value in Europe would help to limit the crowding-out effects on the European economy**. In the 2025 Asterès–Cigref study, one of the forward-looking scenarios analysed the benefits for Europe of increasing the market share of European suppliers by 15 percentage points by 2035. Assuming constant expenditure levels (€400 billion per year), constant price increases (€140 billion per year) [41], and a constant functional scope, realising this scenario would preserve 120,000 jobs and €9 billion in added value per year compared to the baseline scenario. Such a leap in competitiveness would, however, require proactive measures, some of which would not be financially neutral.

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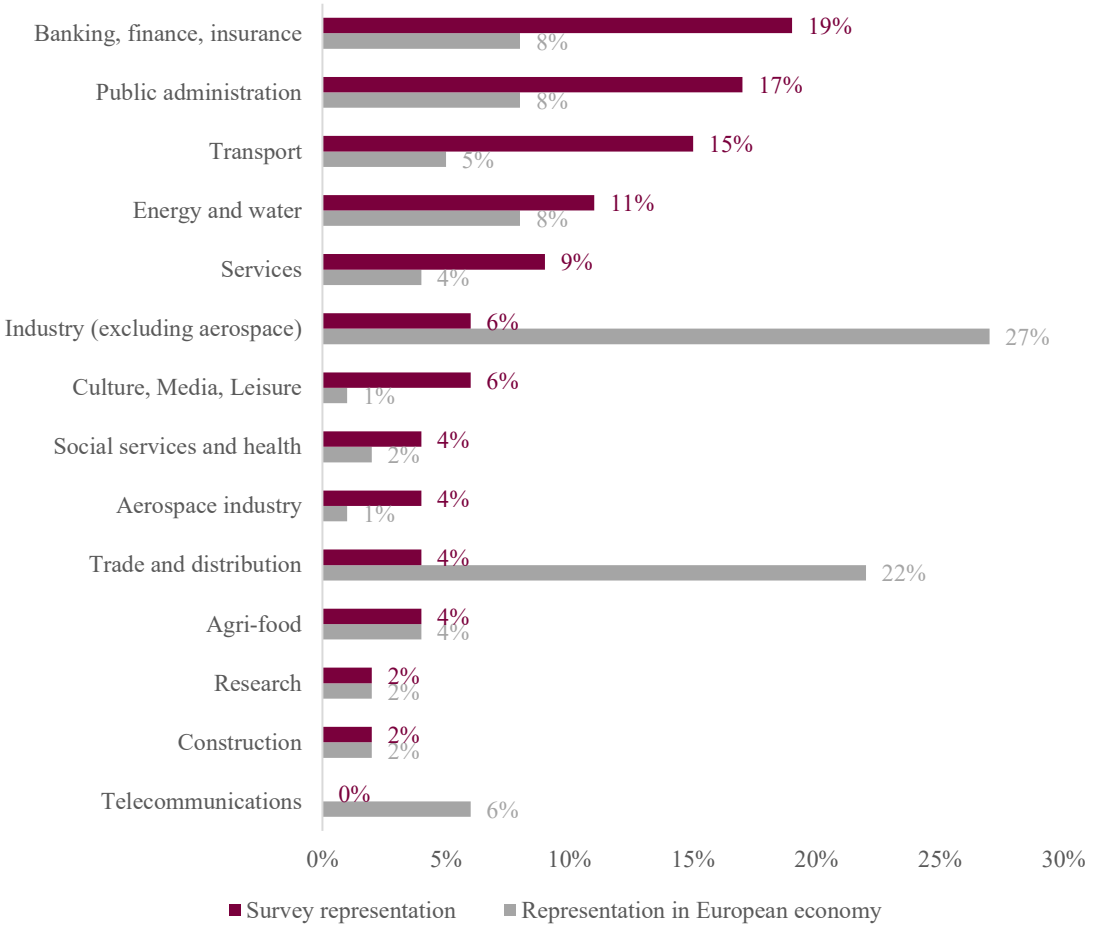
[36] The European Union's GDP stands at approximately €18 trillion. A 0.8% gain on this value added therefore corresponds to a gain of €140 billion.
[37] Acemoglu, D. (2025). The simple macroeconomics of AI. *Economic Policy*, *40*(121), 13-58.
[38] Aghion, P., & Bunel, S. (2024). AI and growth: Where do we stand? *Policy note*.
[39] Sources cited in Bersinger and Schwerer, *La dépendance technologique aux softwares & cloud services américains*.
[40] Dozias, A. (2023). La concurrence dans le marché français des communications électroniques. *Trésor-Éco n° 321*.
[41] The price of European solutions is on average 10% higher, but in this scenario Asterès assumes that by becoming more competitive, European players would be able to align their prices with those of their American competitors.

APPENDIX

Distribution of respondents by sector.



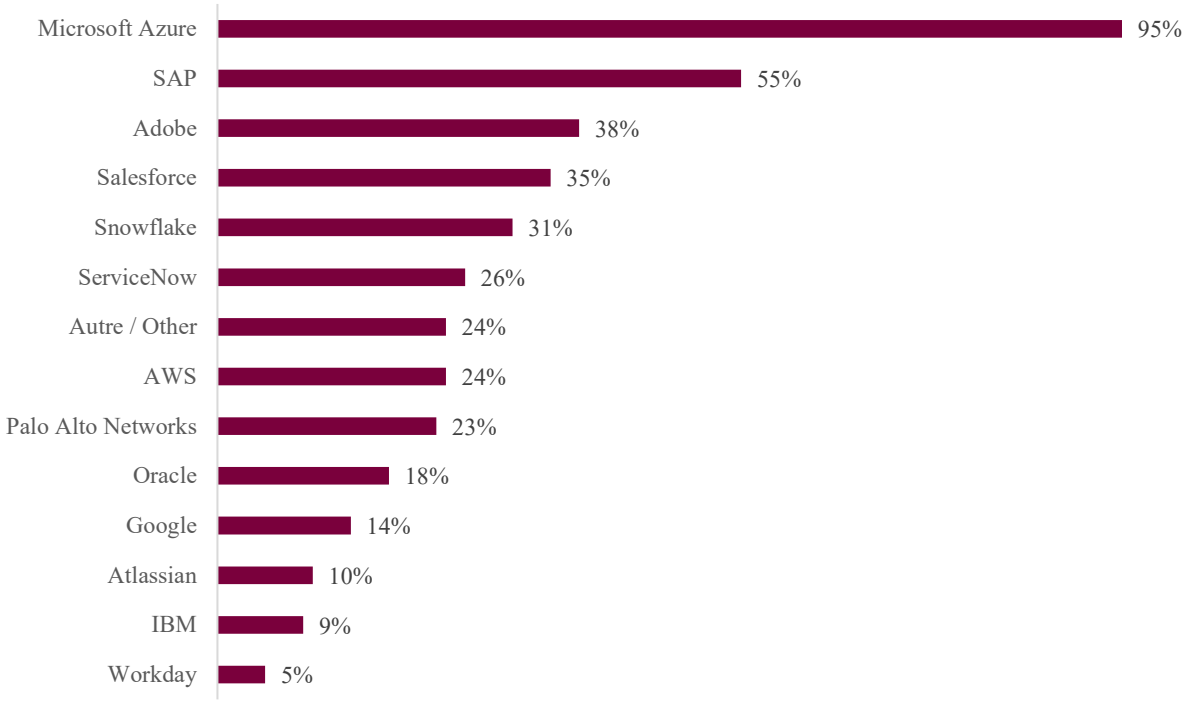
Survey: n=54, data before sectoral weighting.

European economy: Eurostat data.

Question: *Who are your top 5 cloud software providers?*

n = 54

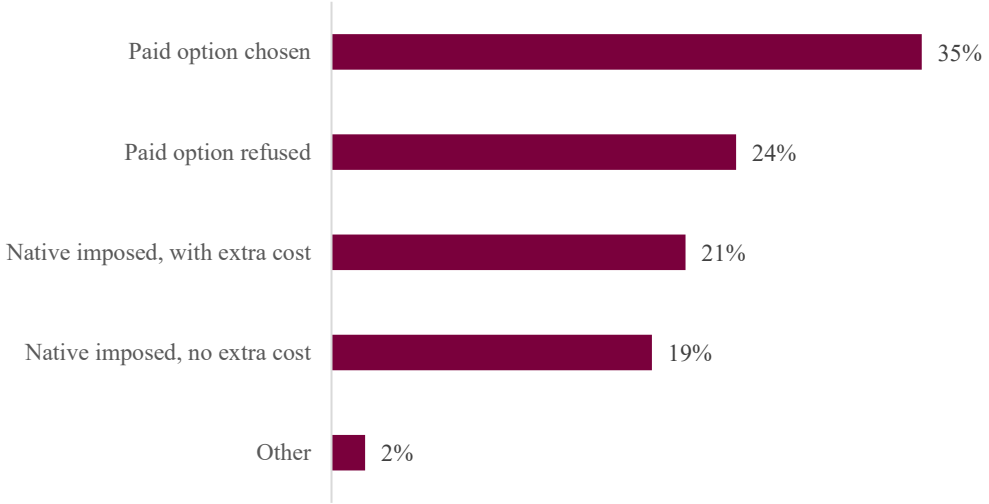
Top cloud-software providers



Question: *Have your main cloud software providers integrated Artificial Intelligence features (generative or otherwise) into the solutions you already use, for your direct use?*

Distribution standardised to 100%. n = 43

Mode for proposing AI features.

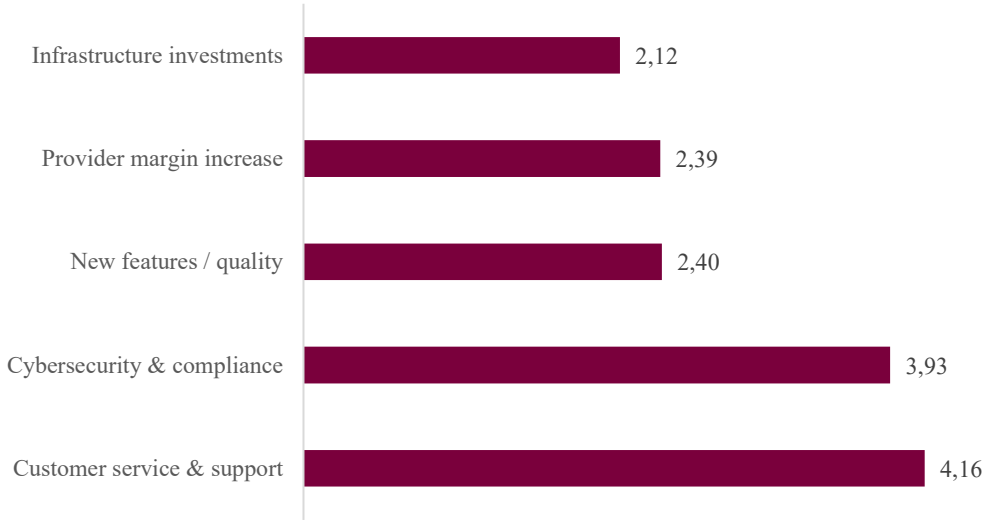


Question: *In your opinion, which of your supplier's expenses does your cloud-software budget contribute to financing? Rank them in order of importance.*

Note: The score corresponds to the average rank; a lower score therefore indicates a higher ranking.

n = 54

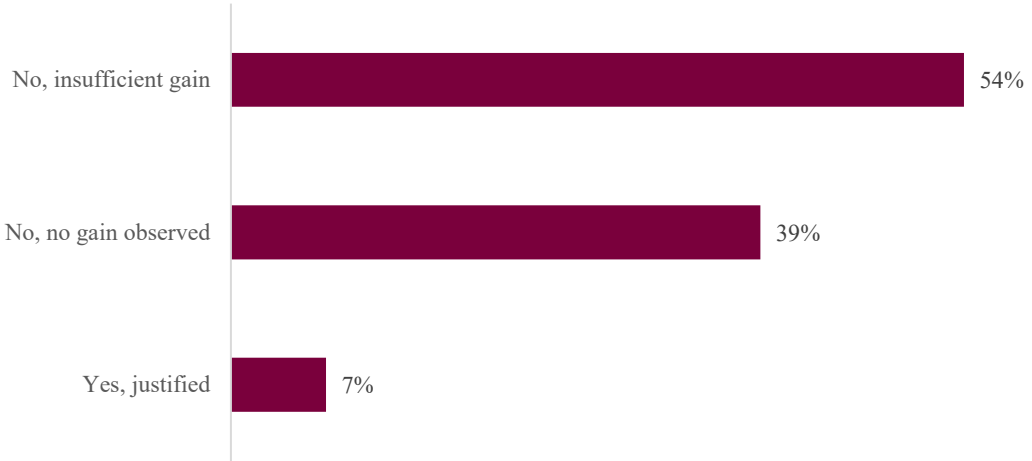
Perceived allocation of the cloud budget (average rank)



Question: *In your opinion, do you think these price increases are justified by an improvement in quality?*

n = 54

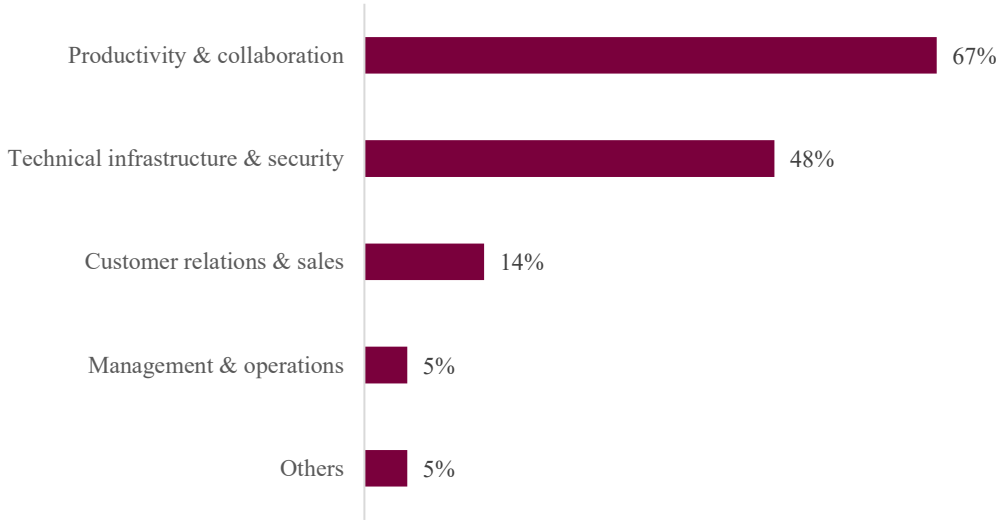
Justification for the increases



Question: *In which types of cloud software have you observed the three most significant increases?*

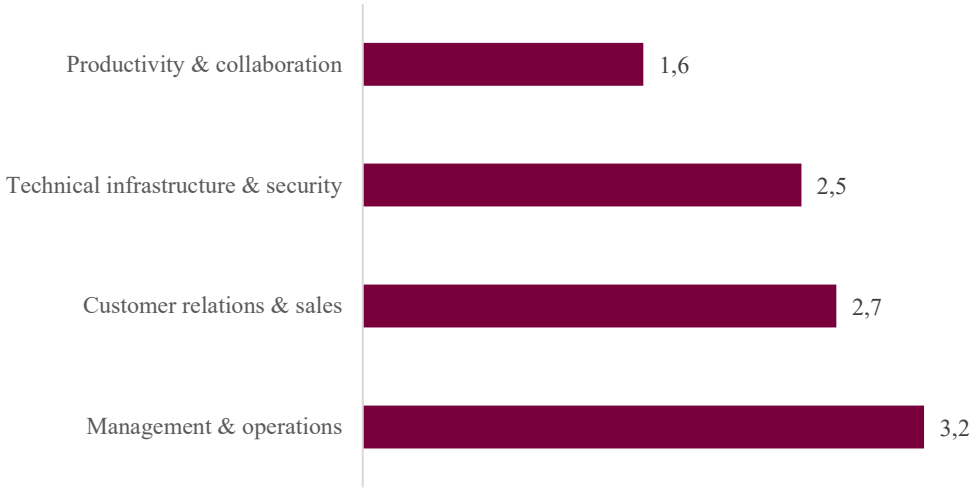
Note: this question was phrased differently for English respondents (up to two possible choices) and for French respondents (ranking).

Types of software (English)



n = 21

Types of software (French)



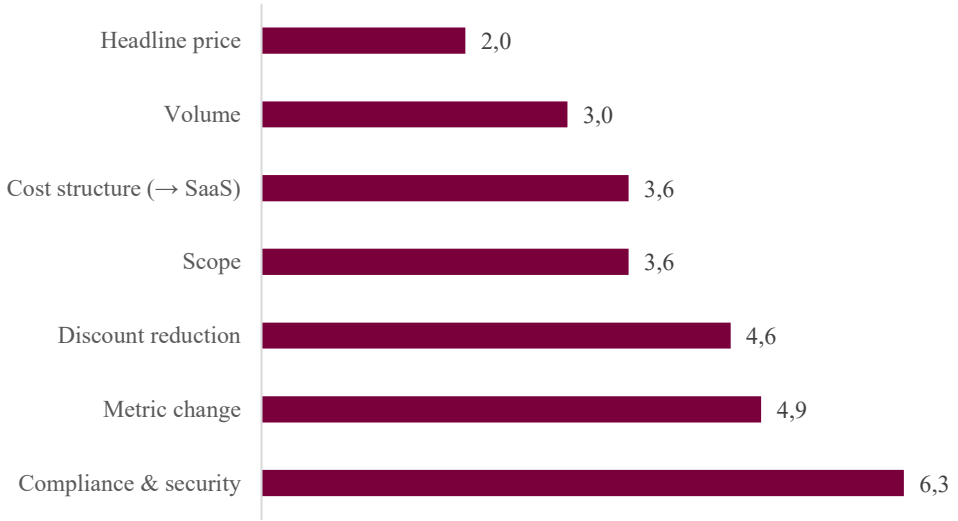
n = 33

Question: *Which technical or contractual mechanisms have contributed most to the increase in your cloud and software expenditure over the last three years? Rank them in order of importance.*

Note: The score corresponds to the average rank; a low score therefore indicates a higher ranking.

n = 54

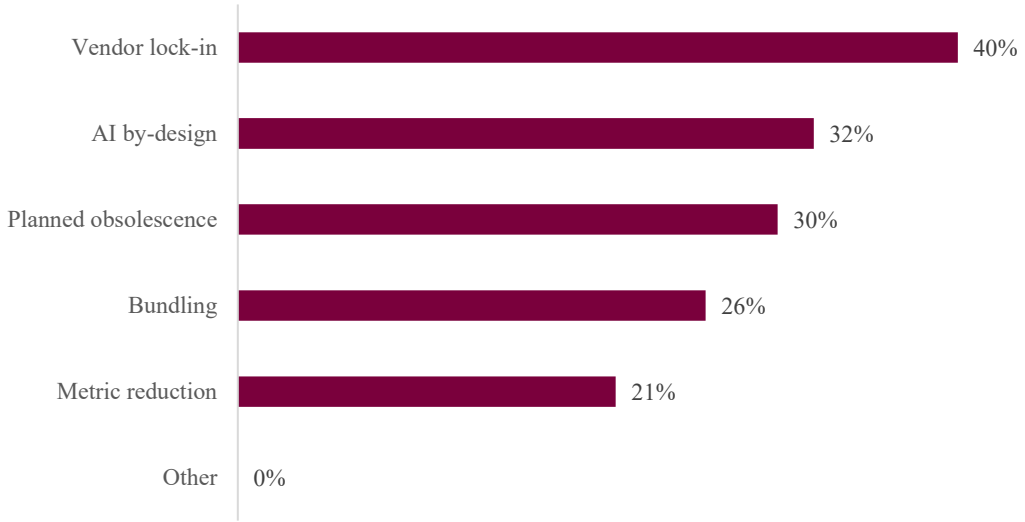
Increase mechanisms (average rank)



Question: *Over the last three years, what percentage of your contract renewals do you think involved the following unfair practices?*

n = 54

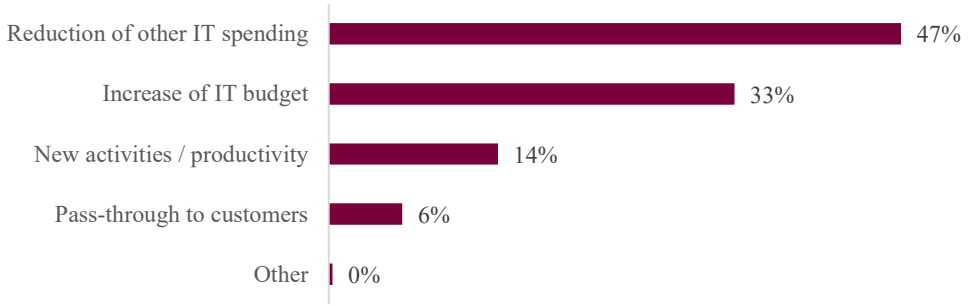
Abusive practices



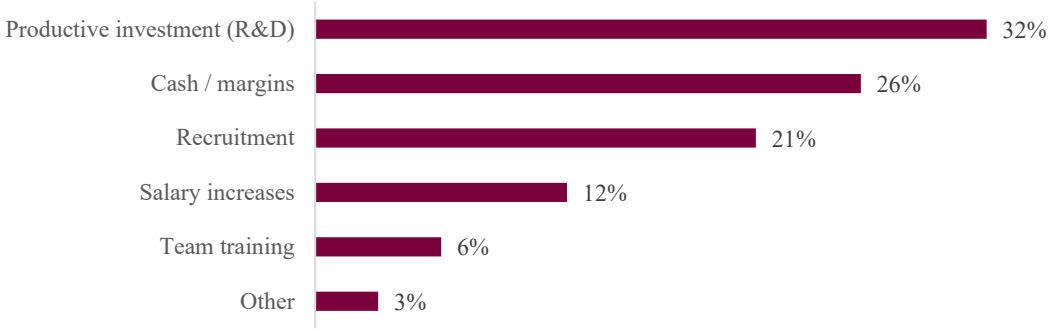
Question: *How do you fund these price increases?* Standardised distribution at 100%.

n = 54

Funding the increases



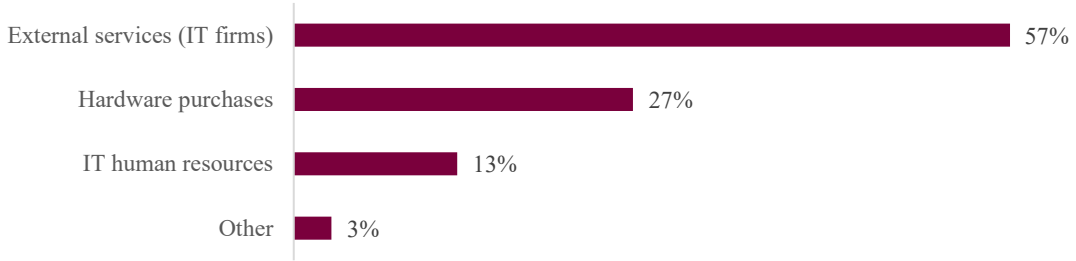
A. In your view, at the expense of which other expenditure is the increase in the IT budget taking place? (For organisations that reported increasing IT expenditure by diverting funds from other areas of the organisation). Distribution normalised to 100%.



B. Which IT expenses are you cutting back on to fund these price increases? (For companies that reported reducing other IT expenses). Distribution normalised to 100%.

n = 19

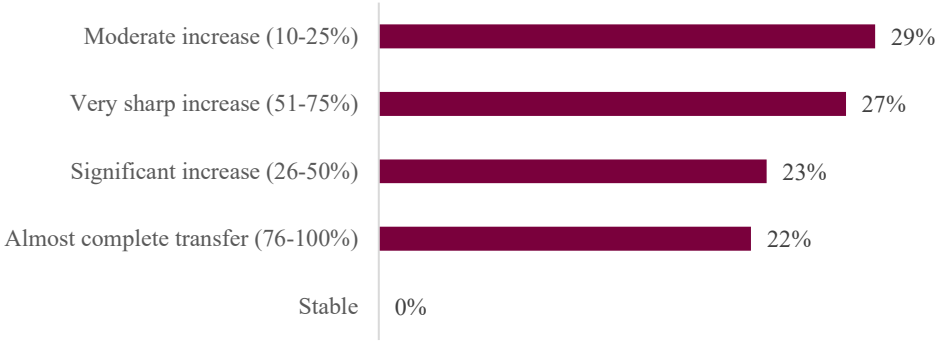
Sacrificed digital dependencies



Question: *What has been the trend in the ratio of OPEX (operating expenditure) to CAPEX (capital expenditure) in your digital budget over the last five years?*

n = 50

Trends CAPEX → OPEX



Question: *Would you say that the current cloud business model (OPEX, unpredictable cost increases) poses a risk to your IT department's long-term investment capacity?*

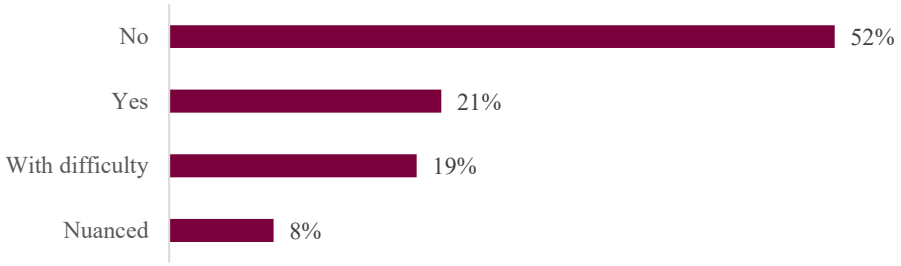
n = 54

Risk to investment capacity

Question *: Do you consider these price increases to be financially sustainable for your organisation over the next five years?*

n = 54

Financial sustainability over five years



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