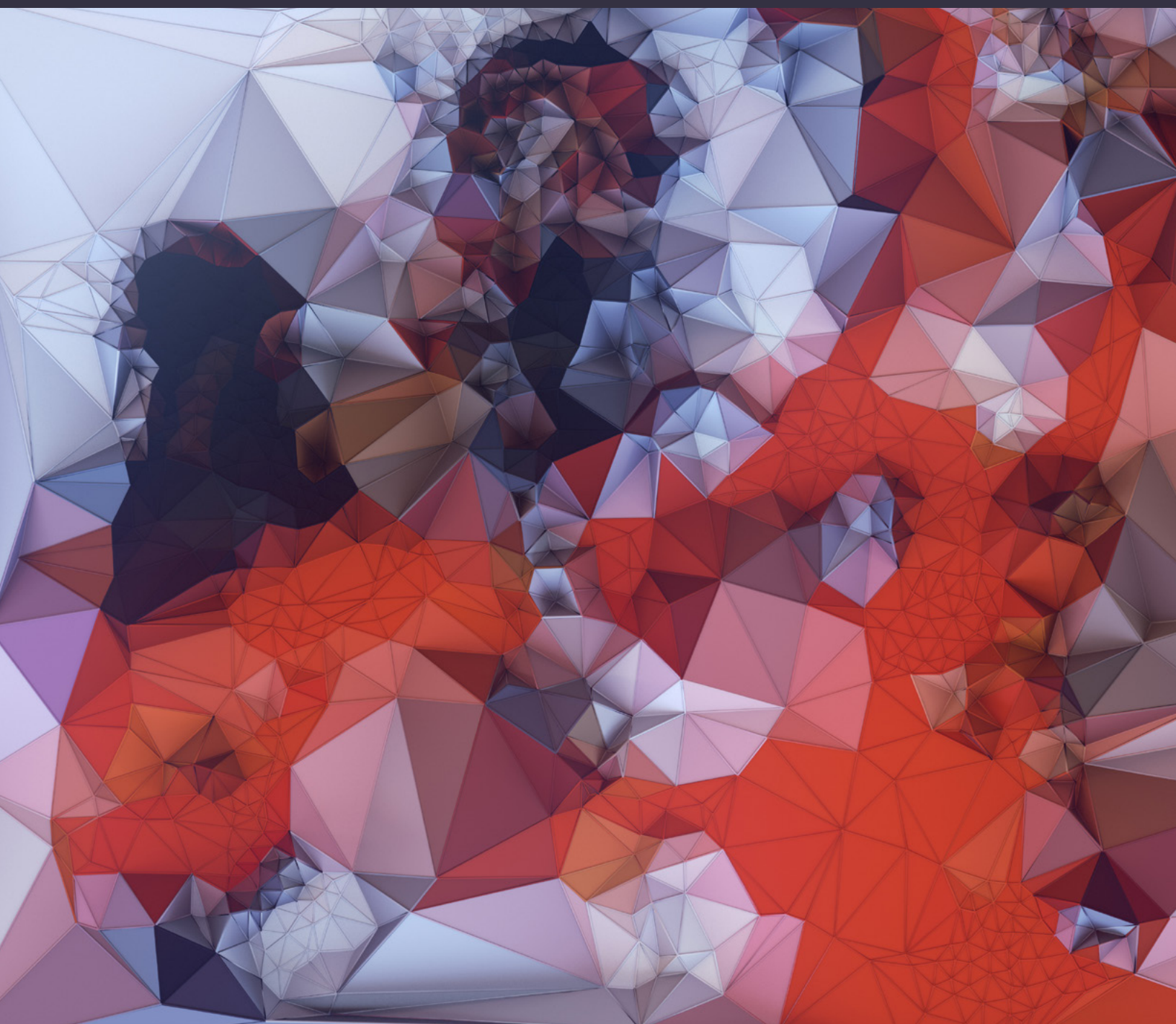


# Total Cost of Ownership of Intelligent Automation

## Estimate and Optimize TCO

EY is the Knowledge Partner in this Study



# TOTAL COST OF OWNERSHIP FOR AN INTELLIGENT AUTOMATION SOLUTION

## Why Does TCO Matter?

Understanding Total Cost of Ownership (TCO) of a solution is crucial for enterprise buyers to structure a business case and secure executive sponsorship. Most enterprises are clear on the benefits of Intelligent Automation (IA). However, the continuing struggle to estimate costs makes it difficult to create a credible business case.

The IAC deployment architecture adopts a “security first” approach to the protection of customers’ infrastructure and data.

## What is Intelligent Automation

Automation and its form factors are defined inconsistently across enterprises. This paper creates a baseline around automation and its variants before diving into the specifics of TCO.

Intelligent Automation (IA) is automation’s latest frontier and blends artificial intelligence (AI) and cognitive features into Robotics Process Automation (RPA) to make it possible for enterprises to address newer use cases and produce better outcomes. This latest avatar, Intelligent Automation, must include the following key components, as highlighted in Figure 1.

## Intelligent Automation Includes The Following Core Components

### KEY VALUE ADD FOR ATTENDED AUTOMATION



#### Low-code Features

Simplifies and accelerates bot development and deployment; helps hasten the bot’s transition from concept to production.



#### Integrated Platform Approach

Includes OCR (Optical Character Recognition) and analytics integrated with the core platform, resulting in little or no additional effort and cost to integrate third-party solutions.



#### AI-Enabled RPA

Expands coverage and brings new use cases under the scope of the solution. Embedded analytics enhances visibility of bots in production, improving ROI.

# CHALLENGES IN ESTIMATING TCO

Intelligent Automation is inarguably among the highest priority digital transformation enabler for enterprises today, with proven benefits structured around cost optimization and productivity gains. However, enterprises continue to struggle with non-compelling business cases with the bottleneck primarily hovering around cost estimations.

## Enterprises must factor-in features of an Intelligent Automation solution and the likely implications on TCO.

Enterprises have continued to struggle estimating TCO, first for RPA and now for IA solutions. This is caused by a combination of the factors.



Lack of understanding of what constitutes a BOT



Variances in the pricing approach for automations



Lack of visibility on cost components beyond licensing



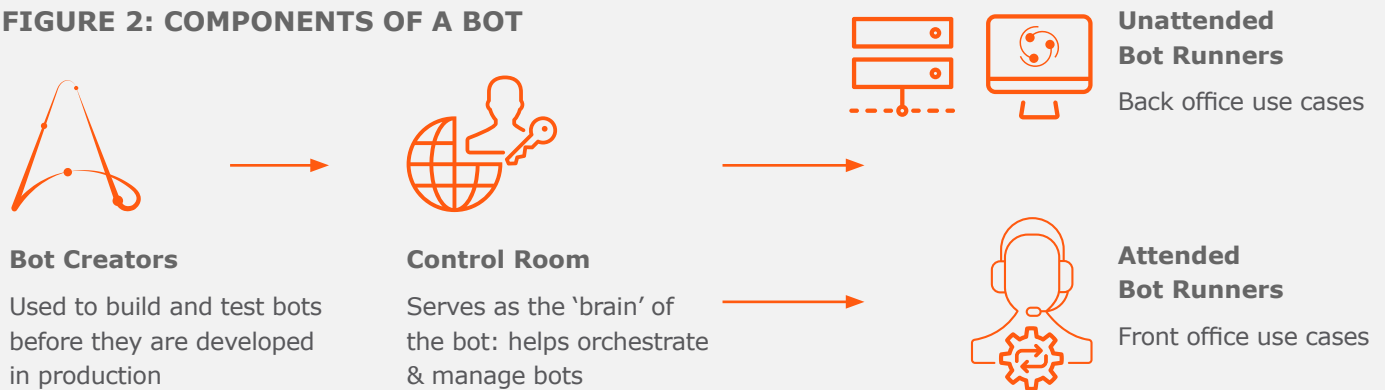
Lack of clarity on effort estimations in intelligent automation



# LACK OF UNDERSTANDING OF WHAT CONSTITUTES A BOT

There is inconsistency in the way a unit of automation—a bot—is defined across vendors. We consider a bot to be composed of three core components as shown in Figure 2.

**FIGURE 2: COMPONENTS OF A BOT**



**Vendors usually differ in the way they package the core components. This causes confusion in TCO estimations. Typically, vendors arrange their version of a bot in line with any of the below approaches:**

## Assisted Approach

In this approach, a bot corresponds to a bundled assortment of all core components licensed together. Other additional features involving reporting & analytics and high availability and disaster recovery support (HA/DR) are also combined with the single instance of bot with no separate licensing involved. In effect, a unit of automation in this instance is equivalent to a bot.

## Component-led Approach

Core components are sold separately in this approach. In the component-led approach a bot unit is equal to a unit of bot runner. Analytics, high availability and disaster recovery and other components are each sold as separate licenses. In effect, a unit of automation in this instance is equivalent to an execution bot.

**Enterprises must also understand the type of bot that is relevant to their context and should clearly articulate which of the below bot types fit their purpose:**

## Attended Bot

Bots that require human intervention or respond to employee-triggered actions by automatically completing certain tasks to simplify a workflow.

## Unattended Bot

Bots that run the total workflow with minimal human intervention. These are usually relevant for back-office automations.

**The above bot versions address different use cases vary in their cost implications.**

# VARIANCE IN THE PRICING APPROACHES

Varied pricing approaches further confuse enterprises while trying to estimate TCO.

**The below pricing approaches are the most prevalent:**

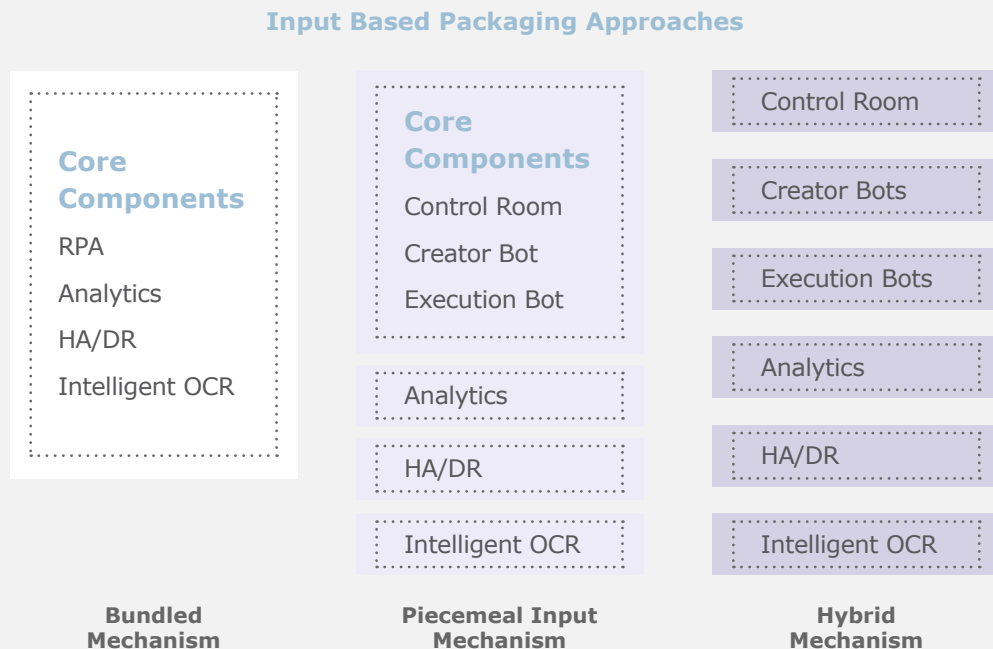
## Input-based Pricing

Perpetual licensing and cloud-based subscription models are the most prevalent in this approach. Inconsistencies in the way the input is packaged lends complexity to TCO estimations. Figure 3 samples vendors and their distinct approaches.

## Output-based Pricing:

Structured on measurable output instances such as the volume of transactions processed. This approach is not mainstream. Given the broad scope of IA, building TCO estimates based on potential outcomes can be very challenging.

**FIGURE 3: INPUT BASED PACKAGING APPROACH**



## LACK OF VISIBILITY ON COST COMPONENTS BEYOND LICENSING

Licensing is one of seven cost elements. Most enterprises lack clarity on cost elements beyond licensing – this hinders TCO estimations.

Licensing constitutes 10-25% of the TCO, depending on the type and scale of automation, it is very important that enterprises have clarity on the other cost components to structure a solid business case.

# LACK OF CLARITY ON EFFORT ESTIMATIONS

Enterprises lack clarity related to effort and resulting cost ramifications in the context of Intelligent Automation components. Case in point: There is general lack of clarity on reduction in manual processing effort resulting from improved straight through processing times of cognitive OCR solutions. This makes it extremely difficult to understand cost implications.

**This whitepaper addresses TCO complexities and presents a framework for TCO estimations that can be scaled across vendors.**

## TCO FRAMEWORK

### Cost components

#### Bot Definition

This whitepaper considers a bot to be an equivalent of an execution bot (1 automation = 1 execution bot). This execution bot is supported by a control room and a creator bot with the mix of the two components changing in a non-proportional manner as an enterprise scales-up.

#### Pricing Approach

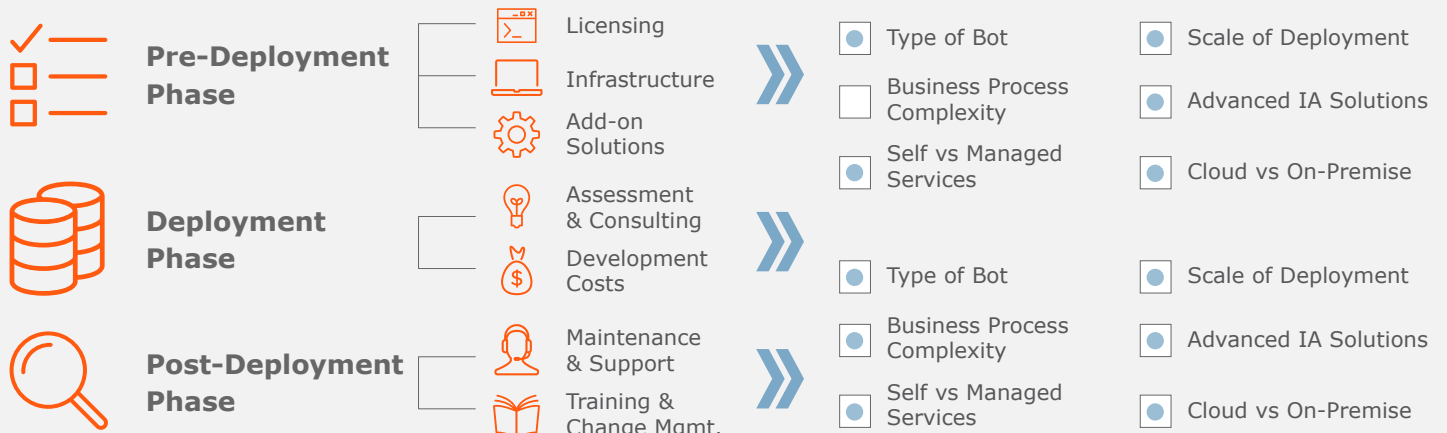
A perpetual licensing approach (input-based) was considered. Within perpetual licensing, a hybrid approach (see Figure 3) was taken into consideration.

The TCO framework introduced below explains the different cost components associated with the purchase and deployment of Intelligent Automation (Figure 4).

### FIGURE 4: COST COMPONENTS OF INTELLIGENT AUTOMATION

The framework considers total cost of ownership (TCO) of an Intelligent Automation solution to be influenced by seven cost components. These seven components appear in a certain order, across three key phase—pre-deployment, deployment and post-deployment.

#### Factors Influencing the Cost Components

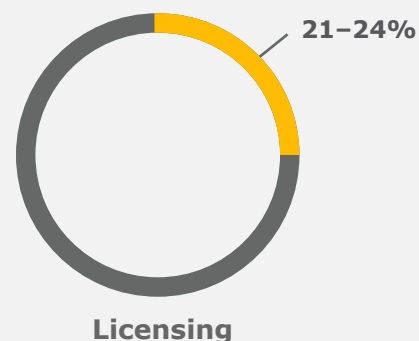




# UNATTENDED AUTOMATION: COST COMPONENTS AND THEIR IMPACT ON TCO

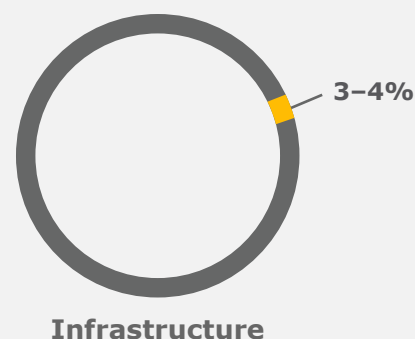
## LICENSING:

Licensing represents the spend on core component licenses. In an unattended bot deployment, licensing contributes between 21% to 24% to TCO. Licensing as a cost component is influenced by the scale of deployment, the deployment and/or delivery modes (cloud-based, on-premises or managed services).



## Infrastructure:

Includes investments in infrastructure components such as licenses for servers (app and SQL, high density, terminal), virtual machines, among others. In an unattended bot it ranges between 3% to 4% of the overall 3-year. This cost component and its contribution to the overall TCO is a function of the scale of deployment and delivery modes (cloud-based, on-premises or managed services).



## Add-on Solution:

**Add-on solution costs include investments in the 'intelligent' and other features such as:**

**Analytics & Insights** Platform provides functional and operational insights into bot performance. These provide real-time information around different KPIs like ROI, FTE replacement which help in improving the IA effectiveness and productivity gains.

**Intelligent OCR Platforms** are image-based automation tools that are leveraged by the customers to automate content heavy processes that store unstructured data, which cannot be addressed by a legacy solution.

**High Availability and Disaster Recover** licenses ensure the business continuity and disaster recovery mandates are catered to and ensures the solution is failure proof.

In an unattended deployment, add-on component contributes roughly 4%-17% to the overall TCO. We notice a continual reduction in the component's contribution to overall TCO with increasing scale (can drop below 1% in very large—10,000 bots and above—deployments).



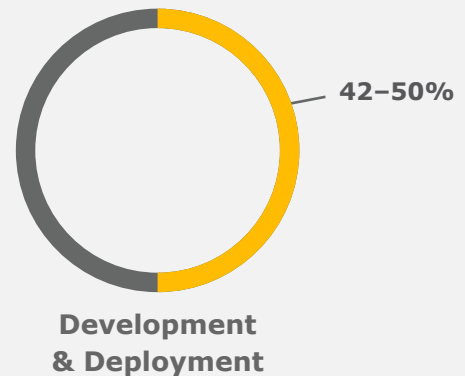


#### Assessment & Consulting:

Includes cost of subject-matter experts (SMEs). In an unattended bot deployment, the assessment and consulting costs can range between 4% to 5% of the 3-year TCO. It is impacted mainly by the complexity of processes in scope.

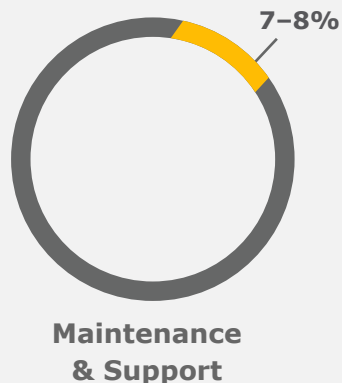
#### Development & Deployment:

Costs incurred to develop, configure and transition a bot from concept to production are included in this cost head. In an unattended bot deployment, the development costs can range between 42% to 50% of the 3-year TCO. The factors that impact this cost component are the scale of deployment, the business process complexity and the deployment mode of IA.



#### Maintenance & Support:

Includes cost of process consultants, support engineers, and infrastructure management professionals responsible for maintaining and troubleshooting systems. In an unattended bot deployment, the maintenance and support costs vary between 7% to 8% of the 3-year TCO. Business process complexity, support business models (e.g.: frequency of updates and upgrades) and the choice of deployment (on-premises Vs Cloud Vs Managed Services) influence this cost component.



#### Training:

Includes costs incurred on training and change management to ensure seamless transition. In an unattended bot deployment, the training costs vary between 6% to 7% of the overall 3-year TCO. Product specific attributes (recorders and in-product training) and the maturity of the training and enablement ecosystem impact this cost element.





## SO, WHAT DOES IT REALLY COST?

### What is the average cost per bot per year?

The cost per bot per year is subject to a set of variables that include complexity of use case, integration and customization necessities, among others.

Our estimates indicate that the average cost per unattended bot per year ranges between \$15,262 to \$19,348 depending on the set of variables mentioned above.

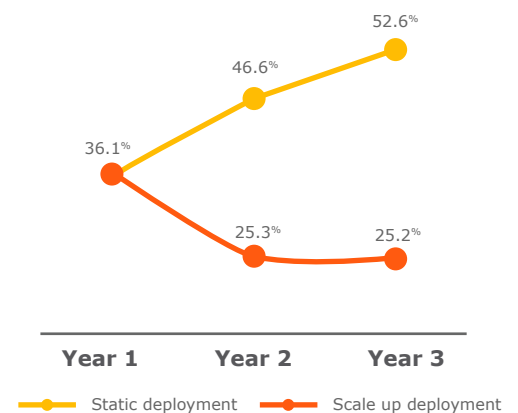
### Unattended Automation

**\$15,078–\$19,348**

### Why do we emphasize having a clear roadmap for expansion in automation's scope?

Because organizations who do plan out their journeys and have a strategy to scale-up, witness economies of scale setting-in where licensing costs and their contribution to overall TCO are concerned (see figure 5).

The license costs as a percentage of overall TCO were substantially lower (~24% in case of unattended bots and 12% in case of attended bots) for enterprises that ramped-up bot deployments. Hence, enterprises planning their ramp-ups and having a clear roadmap ended up with more returns on their license investments.



**FIGURE 5. INFLUENCE OF SCALEUP STRATEGY ON LICENSE COST CONTRIBUTION**

## CASE STUDIES

The costs and the analysis are representative of different client-types represented in case studies below. The four case studies considered for this whitepaper mimic the larger universe of clients and their consumption patterns:

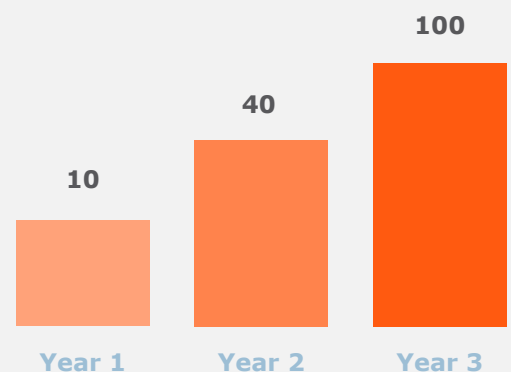
### Beginner Strategy

Represents firms who are either beginning their IA journeys or small and medium businesses (SMBs) where the potential scale of IA can be up to 100 bots.

#### Unattended Automation



Starts at 10 bots in Year 1 and then scales to 40 and 100 respectively in Year 2 and 3 respectively



#### Unattended Automation

**Bot Runner** 100

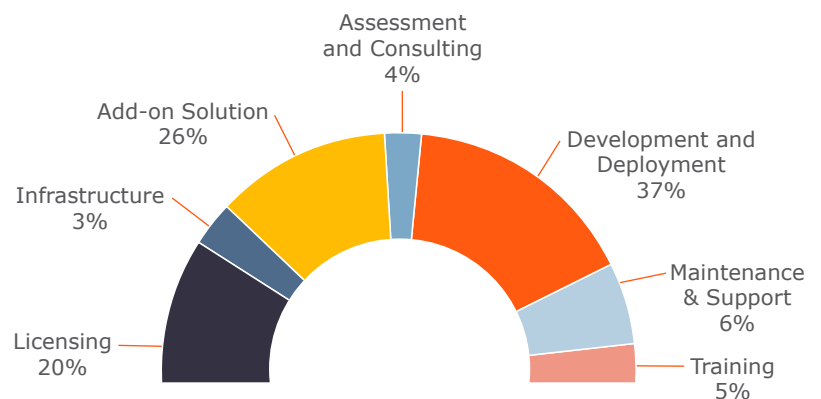
**Control Room** 3

**Bot Creator** 10

#### Cost Per Bot Per Year

**\$15,500–\$19,900**

#### Unattended Automation: Cost Components



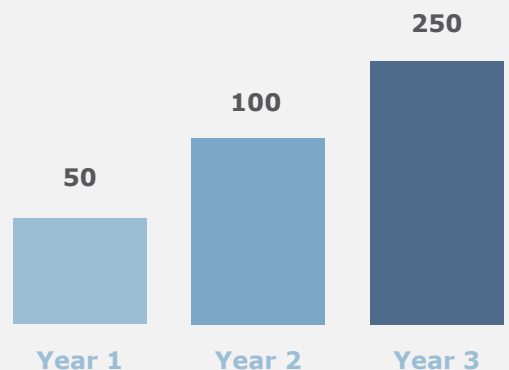
## Conservative Strategy

Larger enterprises that are using IA across functions and can potentially consume up to 250 unattended bots.

### Unattended Bots



Starts at 50 in year 1 & scales to 100 and 250 in Years 2 & 3 respectively



**Bot Runner** 250

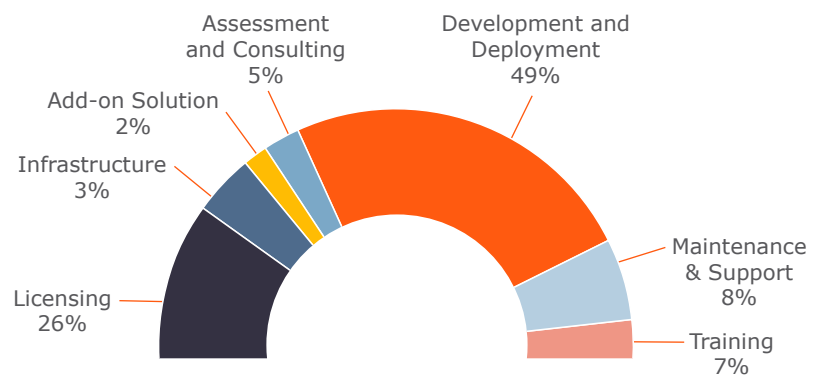
**Control Room** 3

**Bot Creator** 17

### Cost Per Bot Per Year

**\$15,100–\$19,400**

### Unattended Automation: Cost Components



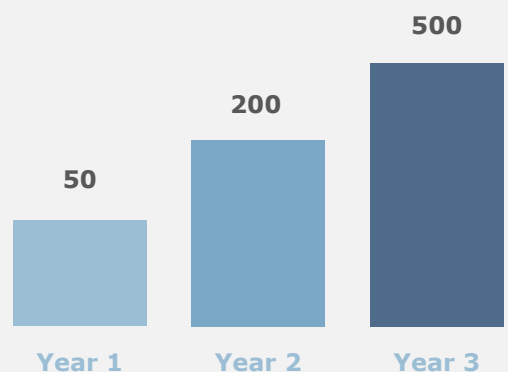
## Balanced Strategy

Organizations that are using IA across functions and have a sizeable customer support (back-office) play. These enterprises consume about 500 unattended bots and 5000 attended bots.

### Unattended Automation



Starts at 50 in year 1 & scales to 200 and 500 in Years 2 & 3 respectively



Bot Runner **500**

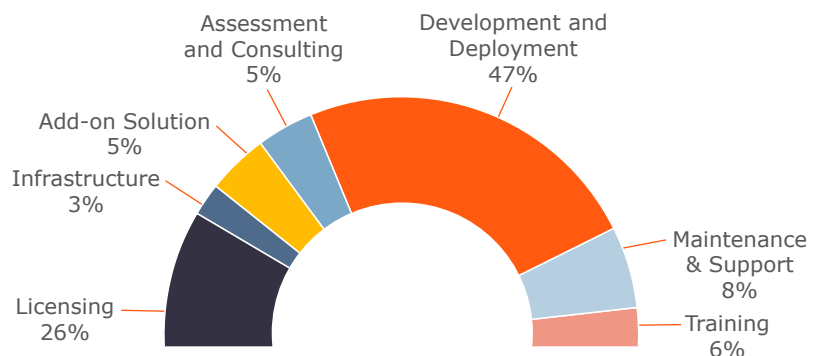
Control Room **4**

Bot Creator **34**

### Cost Per Bot Per Year

**\$15,300–\$19,600**

### Unattended Automation: Cost Components



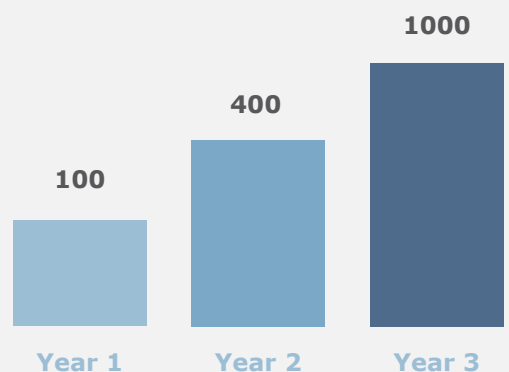
## Aggressive Strategy

Highly mature IA adopters who have a significant customer-support play. Their deployment scale includes about 1000 unattended bots and 10000 attended bots.

### Unattended Automation



Starts at 100 in year 1 & scales to 400 and 1000 in Years 2 & 3 respectively

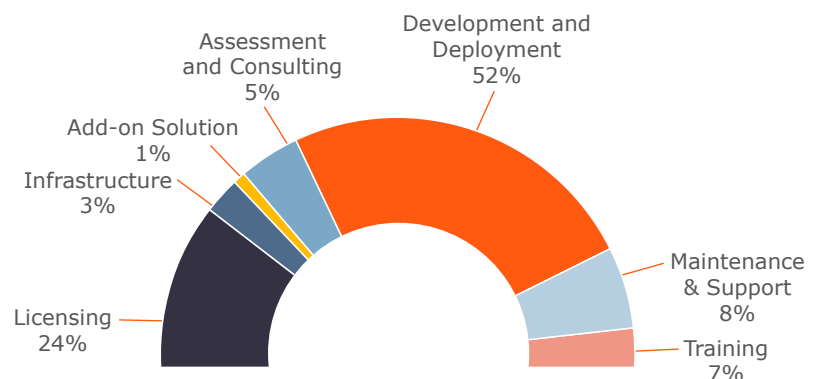


Bot Runner	1000
Control Room	7
Bot Creator	67

### Cost Per Bot Per Year

**\$15,300–\$19,600**

### Unattended Automation: Cost Components



# ATTENDED AUTOMATION: TCO FOR DEPLOYMENTS IN CONTACT CENTERS

Articulating the bot and its application to a given use case is necessary before delving into the TCO calculations. In a large-scale deployment like a contact center, attended bot deployment usually ranges in 1000's and the processes work in coherence with thousands of call center agents working in parallel.

The cost components in this case is like that of unattended bot deployment, but the method to arrive at the TCO and the cost distribution across these components are very different. In these type of deployments, we consider multiple factors before arriving at the TCO.

## ADDITIONAL FACTORS

### Agents or Seats Working on a Process

In an attended bot deployment the number of agents working on a given process can typically vary between 100 – 250 agents per process depending on the scale of contact center and complexity of the process.

### Seat Utilization

The ratio of contact center agents to the number of seats in the center. This helps in defining the number of bot licenses to be procured. The standard seat utilization for contact centres can vary between 1.5 – 2.

## KEY METRICS

**Cost Per Seat Per Year:** The cost per seat per year is defined as the average cost of deploying an attended bot solution per agent in the contact center. This is subject to a set of variables, including—agents working on a process, complexity of use case, integration and customization necessities, among others. To identify the average cost per seat, we considered three types of clientele based on the scale of operations run by the contact center as shown in the table below:

Our estimates indicate that the average cost of attended bot per seat per year ranges between \$ 800 - \$ 1, 700 depending on the set of variables mentioned above.

## ATTENDED BOT DEPLOYMENTS

Seats (Agents)	2,500	5,000	10,000
Attended Bots	17	34	67
Control Room	2	4	8
<b>COST PER BOT PER YEAR</b>	<b>\$830–\$1,650</b>	<b>\$810–\$1,640</b>	<b>\$800–\$1,630</b>

\*A Process to Seat ratio of 1:100, with a seat utilization of 1.5 has been considered to arrive at the above metric



## OPTIMISING TCO

Buyers should be looking to their automation partners for ways to optimize the total cost of ownership. Enquire about cost optimization levers in addition to the discounts on licenses. The paper highlights seven such levers for TCO optimization.

## LEVERS TO OPTIMIZE COST COMPONENTS

Considering licensing and deployment constitute close about three-fourths of the total cost of ownership of an intelligent automation solution, it is a necessary for businesses to plan ways to optimize related costs. Figure 6 highlights some of the key optimization levers.

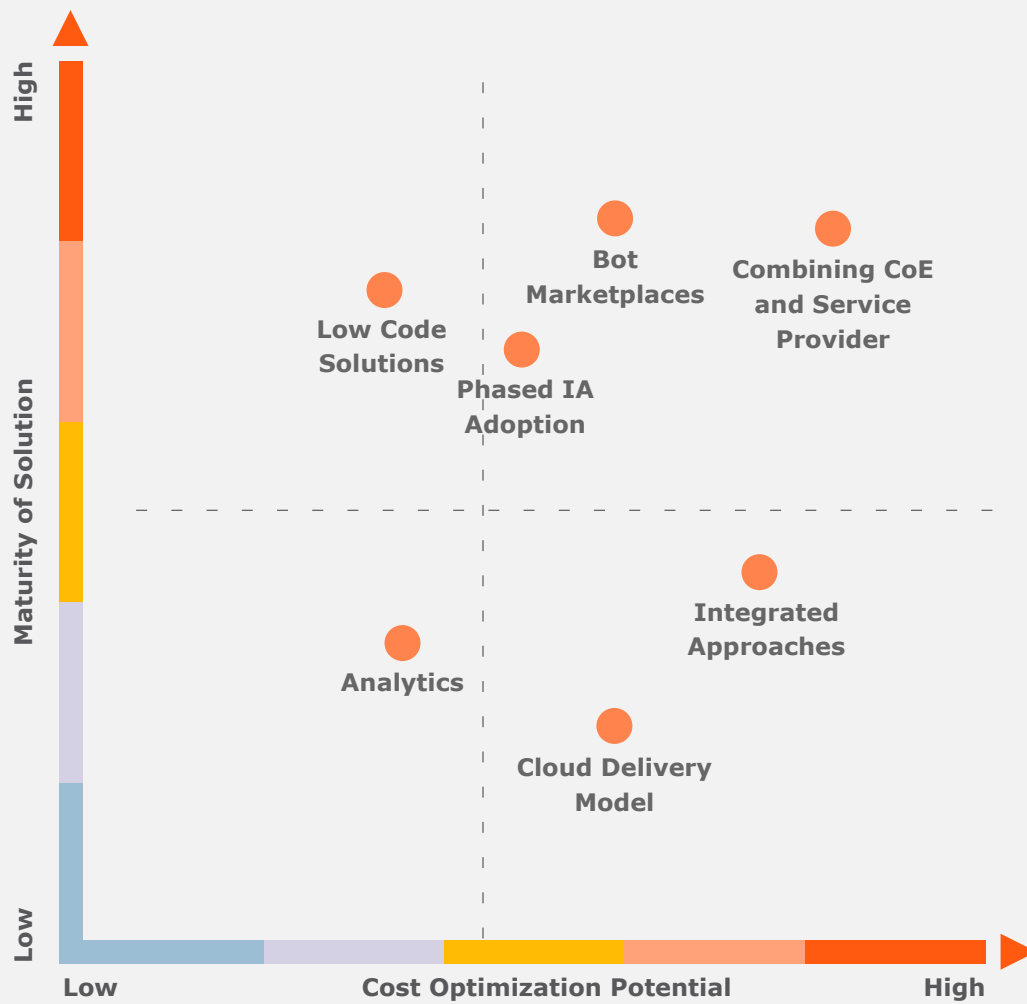


FIGURE 6: LEVERS TO OPTIMIZE THE TCO



### Seek solutions that minimize coding requirements

Solutions that require specialized coding skill sets and custom scripting can be very time consuming and create additional development-related overheads. Traditional coding-heavy approaches need a serious re-look. Low code automation solutions can aid easy transition from concept to production - in days compared to weeks or months. This facilitates savings and high return on investments. Low code approaches also help business users retain control of bot creation instead of building a separate team of developers at a high cost.



### Prioritize an integrated over a best-of-breed solution approach

The shift to intelligent automation raises important questions related to access to additional tools such as intelligent OCR and analytics. While certain traditional RPA vendors have an integrated approach towards delivering such features, others prefer partnering with third-party tool providers to complete the portfolio. The latter approach leads to complex systems integration and custom scripting that results in lengthy deployment cycles and can be prohibitively costly. Prioritizing an integrated platform approach over a best-of-breed approach can significantly reduce configuration effort (by six to ten times) and related costs.



### Evaluate the quality of bot marketplaces from shortlisted vendors

Ready bot plug-ins and accelerators available on bot marketplaces or libraries can reduce the development timelines, accelerate bot deployment and help optimize development and deployment costs. It is imperative that prospective clients evaluate their intelligent automation partners for the breadth (in terms of use cases that can be catered to) and quality of online bot marketplaces.



### Consider a mix of service provider and a Center-of-Excellence led approach for best results

While a Center-of-Excellence (COE) led approach scores high on economics (COE-led approach can generate cost savings ranging between 40%-50% over a third-party service provider led approach), buyers usually realize that they lack the appropriate skill sets in-house to manage automation end-to-end. It is best to consider a mix of COE and external service providers (especially in process assessment consulting and complex integration) to balance costs with required expertise, until the enterprise has reached a certain threshold in terms of maturity and scale.



### Consider cloud-supported delivery of automation

The traditional RPA and the Intelligent automation domains still follow the old-school approach of on-premise deployment. SaaS solutions are yet to become mainstream. However, the dynamics are likely to change as the market matures and concerns around data security and compliance settle down. Additionally, mid-market interest and investments in intelligent automation is likely to boost accelerated adoption of cloud delivery models. Cloud-based propositions are currently taking shape and there are two likely cloud delivery models with different cost implications:

- a) Hybrid RPAaaS approach: where the vendor provisions the infrastructure and certain RPA core components (e.g.: control room and creator bots) for its client on a subscription/pay-as-you-go basis with the client having the option of having the execution bots on premises or on-cloud
- b) An end-to-end RPAaaS approach: where everything would be provisioned by the vendor/cloud service provider and the client paying for automation services on a pay-as-you-go approach. We estimate a potential to generate cost savings in the range of 25%-30% over traditional approaches.



### Leverage insights and analytics to push ROI with bots

The shift to intelligent automation raises important questions related to access to additional tools such as intelligent OCR and analytics. While certain traditional RPA vendors have an integrated approach towards delivering such features, others prefer partnering with third-party tool providers to complete the portfolio. Subscribing to the latter approach leads to complex systems integration and custom scripting that results in lengthy deployment cycles and can be prohibitively costly. Prioritizing an integrated platform approach over a best-of-breed approach can significantly reduce configuration effort (by six to ten times) and related costs.



### Prefer a phased approach over a big-bang to minimize licensing costs

Ready bot plug-ins and accelerators available on bot marketplaces or libraries can reduce the development timelines, accelerate bot deployment and help optimize development and deployment costs. It is imperative that prospective clients evaluate their intelligent automation partners for the breadth (in terms of use cases that can be catered to) and quality of online bot marketplaces.

## In addition to the cost optimization levers above, ask these questions of your automation partner.

### Is the IA solution **compatible** with open source platforms?

Compatibility with open source platforms such as Linux means users can have one single solution that can support multiple platforms that are both open and closed-source based. This helps optimize licensing costs for enterprises (given the application to be automated doesn't require closed source operating systems).

### What is the platform's appetite for **infrastructure**?

It is important that enterprises evaluate the infrastructure requirement of platforms under consideration. IA vendors are increasingly innovating to create 'leaner appetite' platforms that significantly reduces memory and processing requirements resulting in reduced infrastructure costs (due to increase in the density of virtual machines per server).

### Does the platform architecture support **plug and play**?

Pluggable architectures allow developers and testers in the client-side to roll-out new commands and capabilities without upgrading their system. This translates into reduced maintenance costs as small fixes to commands or adding new ones wouldn't require a system upgrade.

### What features in the platform help reduce **development time**?

Features such as in-product training (accelerated learning on building basis bots and performing simple operations) and localization of user interfaces (regional language support) helps reduce the gestation period for developers trying to acquaint themselves with a new platform. Such features help reduce development-related effort and costs.

## ASSUMPTIONS

### **The whitepaper incorporates the following assumptions**

The tenure of an IA license is a year. For a three-year ownership structure, two license renewals were considered.

Types of processes considered for the study panned across processes within P2P, O2C, R2R, HR (Payroll), Account Reconciliation and SCM. A process complexity mix of 80:20 was considered between simple and complex processes.

The cost estimates are modeled considering the services—development and deployment, maintenance and support, and training are being hosted offshore.

For intelligent OCR related calculations, the page scans in scope were 2 million.

A bot is meant to automate only one process and may not toggle across multiple processes (1 bot = 1 process).