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Dear Mr. Watson,

Following your request at the beginning of this year, we are forwarding you our report considering implementing IBM Watson NLP based services. Particular attention has been paid to the client retention and new client relationships being handled with the help of NLC classifier and other products of IBM Watson.

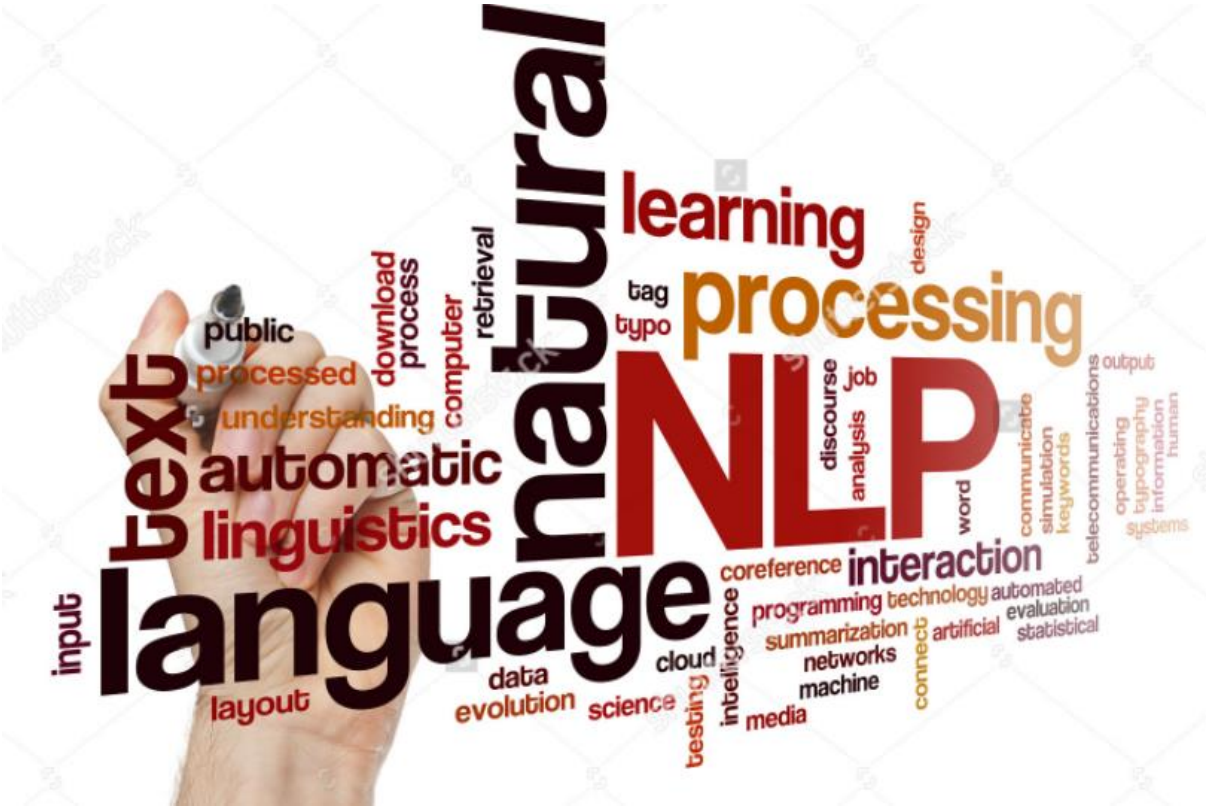
The report finds that this IBM Watson plugin will require significant support in terms of technological, developmental and personnel resources and that it will not be possible to absorb these activities into the existing ordinary operational processes. However, there are key areas where collaboration is possible and examples of effective projects have been highlighted with appropriate recommendations.

Thank you for the opportunity to work on this project and should there be any questions arising from the report, we shall be pleased to answer them.

Yours Sincerely,

Vinit Mankad

IS Analyst



RBC's Project on Outsourcing of ICT

IBM Watson: Potential Solution Provider

Prepared for:

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Date of Submission:

23rd June, 2016

Executive Summary

The purpose of this report is to investigate current practice concerning client retention to customers via Royal Bank of Canada's services. After initial searching was conducted, it was decided that as this area of research was very broad that this report be limited in scope to durable access to cognitive solutions from IBM Watson.

This report is supported by literature gathered from the online case studies as well as articles describing the outsourcing of information systems. In this preliminary stage, no original research was conducted, but scope exists to undertake further research governing acceptance and intent of use of proposed systems which are developed from the recommendations arising in this report.

The report has found that this is an ongoing process that will need a suitable funding model in order to generate results in terms of improved retention of, and access to, research support information and original research from this company.

The most important recommendations concern the auditing of existing technologies and skills capacity of the company and to take steps to improve the client relationships across the business into a cutting-edge cognitive solution.

Glossary of Terms

RBC – Royal Bank of Canada

ICT – Information and Communication Technology

API – Application Performance Interface

CRM – Customer Relationship Management

NLP – Natural Language Processing

NLC – Natural Language Classifier

SMS – Short Message Service

CEO – Chief Executive Officer

WBS – Work Breakdown Structure

CIO – Chief Information Officer

AI - Artificial Intelligence

RFI – Request for Information

RFQ – Request for Quotation

RFT – Request for Tender

RFP – Request for Proposal

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Introduction

This business case focuses on the analysis of how Royal Bank of Canada (RBC) is improvising on the client relationships and how to build a better information system that can evaluate the business processes that can provide the operations and sales growth by reducing the requirements of supplier evaluation. The resources and this innovative real-time idea is providing the business case a worthy attention for any businesses across the world. At present, the business model doesn't have any automated process, which creates the client-retention management tedious and impossible for newer clients to create relationships. The results are obvious and documented within the case as well as the RBC's new visions on the newer idea for the system to deliver value for the customers and organization itself by outsourcing the ICT department. Mr. Watson will be able to use this information as a starting point to the business's expansion with keeping customers' information private and the supplier legislated.

Assumptions

There are four factors that affect the outsourcing of the ICT of any organization, we will consider the primary four factors as assumptions about the outsourcing of the services, providing reasons on not to select in-house services:

Cost

While the initiation of the project is about to take place, the programming expenses and other maintenance and ongoing applications that address the technical upgrades, higher user expectations, regulatory changes and outsourcing of the ICT will ultimately cost the seasonal or cyclical demand of services with adding up to the pre-required and released changes (Business Wire 2016).

Time to implement

The outsourcing of ICT of RBC (Royal bank of Canada) will be starting a new project with the resources that are available and handle the projects on in-house basis primarily, however, will hire more employees to train and support the needs of the new system. If RBC' objectives are met then the results will be gained much faster than before and the process will be faster with outsourcing of these new services (Business Wire 2016).

Efficiency

The efficiency of the services of RBC depends on IBM's solution to process the new scaled services such as data warehousing, analytics, web hosting including training for new users. Additionally, the resources will also be looked for the components that can be business=driven as well as competitive in this era of higher research and ICT functions that need implementation of new costs free new services with enhanced customer experience and retention (Business Wire 2016).

Expertise

The ICT services that are supported by IBM are isolated at the moment and without any doubt the training of the outsourcing of the benefits of the expertise of IBM's experts will train RBC's ICT staff. IBM, with national accreditation, has the industries that delivers better aligned vendor support action planning, upgrades and problem resolution within minutes. Additionally, the outsourced services, if in-housed, then the smaller act of giving the access to the technology will not be benefited with the world-class expertise (Business Wire 2016).

Task 1: Report on Outsourcing of ICT

Objectives

The primary objectives of outsourcing of the ICT services for RBC is to gain the individual benefit of the saving a lot of money that is spent after client retention and sales, no requirement of hiring any resources for the client partnership/referral, risk transfer if the delivery is failed or delayed due to any reason, the outsourced organization, here IBM, having past experience of similar projects as this. The supportive objectives are to maximise the flexibility and control of various options that are to be learnt as more services are changed or the circumstances are changed. Additionally, the maximisation of competition has led managers to decide on whether to outsource or not, however, to find potential suppliers for the ICT services is constantly increasing (Harvard Business School Publishing 2016).

In the process of outsourcing of ICT, the enterprises are governed with the services and procedures to define and assess the offshoring of risk with due diligence, the process of contract negotiation and monitoring of the new services are included in the RFI (Request for Information). Moreover, the service provider, here IBM, has development and acquisition of the services with system maintenance and levels of security along with business continuity planning (Arunanthy 2010).

ICT outsourcing process has many challenges such as managing the ICT attainment, compliance requirements with the terms and conditions of the contract, the billing process accuracy, and identifying the business processes with execution of successful remediation. This also includes the business processes that relates to the outsourcing activity as well as internal process that has been affected with the outsourcing process (BRÂNDAŞ 2010).

Client	• Outsourcing decision process • Service provider selection and evaluation • Forecasting outsourcing cost • Outsourcing contract and SLA (Service-Level Agreement) • Budget allocation and execution • Communication with service provider • Reliance on service provider • Monitor provider's service execution and performance • Managing risks in client/service provider relationship • Impact on IT strategy
Supplier	• The analysis of the client requirements in the pre-contractual phase • The outsourcing contract and SLA Service-Level Agreement) • Control tools and system security • Analysis and implementation of client requirements • SDLC Controls • Delivery of services and client satisfaction monitoring • Personnel selection, training and performance monitoring • Client dependency • Change Management

Table 1: Objectives of clients and suppliers (BRÂNDAŞ 2010)

The cost-cutting factor has a key role to play while measuring the objectives of the ICT services or sub-contracting of the operations and maintenance responsibilities that needs to be generated with the ICT professionals as well as general managers (Massachusetts Institute of Technology 2016).

Benefits of selecting better aligned objectives are control over the operating costs, company focus increased, exceptional capabilities gained, internal resources can be accessed freely with capital funds available or out of control functional difficulties (Corporate Computer Services, Inc. 2016).

The clear objectives will identify the strategy for validating the business process and with better outsourcing benefits that can be measured with identification of the options that can be validated and agreed upon the stakeholder requirements and consumer focus that can authorities the exceptional support and create an empowered delivery of services (Fulton, Muir & Frits 2006).

Pros

There are many benefits of ICT outsourcing that can be looked at the organisational level with the supporting technology from the vendor and reasons to select a particular vendor, here, IBM. The primary reason is that they focus on what they provide the best to their customers with reduced cost and a team that has a worthy experience (Penton 2016).

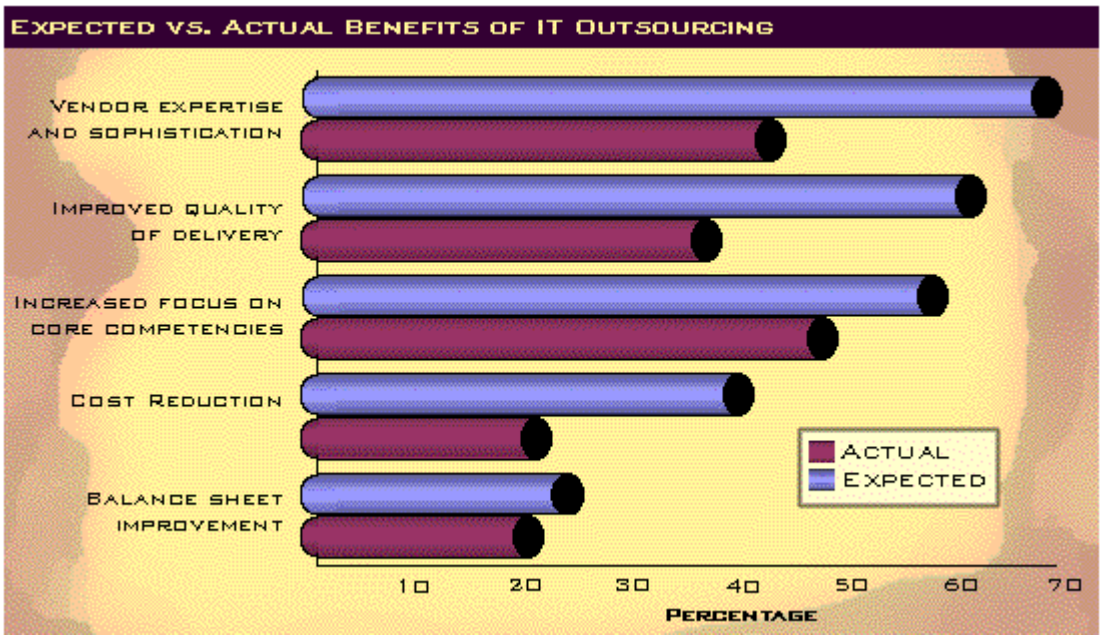


Fig 1: Expected v/s Actual Benefits of Outsourcing (American Institute of CPAs 2016)

Access to state-of-the-art technology

The ICT has many services that can be absolute and updates of software comes every now and then, which requires the timing that can be invested into the training of the staff, the technology may have been changed meanwhile the staff in being trained and can survive to the latest technology (American Institute of CPAs 2016).

Fierce competition has led many businesses to restructure and downsize staffs in an effort to save money

As in the case of RBC, even thriving competitors does whatever possible to reduce staff and costs

Flexibility

The flexibility of the adoption of the services that a business environment has to support the constant influx of the ICT functions and quick responses that demands the ICT staff with limitations of capabilities (American Institute of CPAs 2016).

Job security for regular employees

The organisations such as RBC can achieve ICT outsourcing by understanding the skills as well as the employment of the limitation of the workforce and the reputation of the organization can be in jeopardy, which requires a stable employer. Additionally, the demand of the establishment of the client relationship to regulate the workforce that sometimes is possible (American Institute of CPAs 2016).

Lower Costs

The ICT department is being outsourced that has impact on human resources and other business processes that will require lower cost and pays to get more benefits from the newly placed ICT department. Moreover, the health and other requirements

are also under contract, hence, the maintenance cost will also reduce (Hearst Newspapers, LLC 2016).

Expertise

The work that is being termed as the troubleshooting and resolving the problems such as network issues and glitches into the system has no ICT requirement whilst it has been outsourced, the larger designing of the solutions addition to the resulting work and system level issues and corporate loss can be led by the new department (Hearst Newspapers, LLC 2016).

Concentrating on core process rather than the supporting ones

ICT outsourcing can take the process outputs as timely and strengthened core processes for RBC (Flatworld Solutions Pvt. Ltd. 2016).

Risk-sharing

The major benefit can take the critical determining factors that can process the organizational components that can request the business processes along with the organizational outsourcing capabilities and responsible supplier specialization that may mitigate the risk much better and efficiently (Flatworld Solutions Pvt. Ltd. 2016).

Risks/cons

The risks of ICT outsourcing are however not that much, but the service wait time will increase rather than earlier times when in-house. Additionally, the costs will vary as per the vendor services and security risks to consider with issues like loss of control (Penton 2016).

Media hype and outsourcing benefits

The ICT sector has its areas of downfall, especially when it comes to outsourcing of the information that the managers are considering while reporting it to the outsourced contract and the expectations of the consumers increases and the client-supplier partnership issues comes into headlines becomes more absorbent for the competitors and amendments to make the advertisement more clear to the informative perspective about the mistakes (American Institute of CPAs 2016).

IT is not easily outsourced

The ICT department of RBC has the resources that organizations can outsource than the past few years of experience doesn't matter as the security and logistics can make a better procurement of the information as well as its components (American Institute of CPAs 2016).

Information technology evolves rapidly

The ICT has evolved a lot that the prediction can take up to more than years that can be speculative rather than the ICT outsourcing of the contract becomes more risky (American Institute of CPAs 2016).

Mercurial economics

However, the performance of the improved occurrence of the industrial understanding of the economical shift with the faster ICT mainframe as well as the costly outcomes that are in today's competitive environment that creates the opportunities that decides the evaluation of the outsourced services (American Institute of CPAs 2016).

The cost of switching is high

The ICT industry has all the mergers and takeovers that can make a commonplace a likely place for the suppliers to survive and the difficulties increases as the correct vendor is hard to find (American Institute of CPAs 2016).

Loss of control

The critical ICT department issue is the outside supplier can create the responsive services and lose the level of services and security over the functional perspective rather than to the subjective managerial directives of the control of the employment and concerning supplier relationship needs to be defined in SLAs (Service Level Agreements) including the application specific provisional disaster recovery planning (American Institute of CPAs 2016).

Bad for employee morale

The outsourcing of the resulting transfer of the services that can be with the supplier that has displacement of the morale that tailspins the causes and more than talented staff related fearless of the employment and security (American Institute of CPAs 2016).

Less flexibility

The suppliers can also provide the ICT services that are defined in SLAs and contract can then be technological and dependent on the appreciation and specifying the contracting the organizational flexibility of the services is difficult for the new technologies to migrate (American Institute of CPAs 2016).

Being held hostage

The ICT professionals are those who are more than dependent on the user specific hostile situation and organizational and technical staff to be locked up with the services that are defined with the vendor's contract as well as the software and hardware that can be leveraged with the contract. Additionally the supplier has more control over the services as the outsourcing is handled by them (American Institute of CPAs 2016).

Hidden Costs

The business seeks the outsourcing because the cost of the services and improvement of the ICT quality of service increase by getting the unexpected resourceful organizational client-supplier devotion that operates between the outsourced IBM services and the fees are higher as the reputation and faster services are provided with

the ICT department of the vendor, all this has a lot of cost rather than an in-house service (Hearst Newspapers, LLC 2016).

Confidential Information

The outsourcing of the third-party access controls and other information has the ICT department based in their service location with the exposure to the higher theft of the information as well as the interconnections that require emails to communicate are confidential and can be destroyed with the financial and reputational perspective (Hearst Newspapers, LLC 2016).

Synchronizing the deliverables

The selection of the right vendor depends on their services to deliver with all this together the issue arises of the delivery period and stand-by time with the quality of service and inappropriate responsible targets to achieve with the factors such as inside conflicts on the service delivery and its merits (Flatworld Solutions Pvt. Ltd. 2016).

Lack of customer focus

The outsourcing of the service ma even take the expertise and multiple timeframes that takes the times off from the completion and focus on the organizational tasks that takes in to account (Flatworld Solutions Pvt. Ltd. 2016).

Delivery models

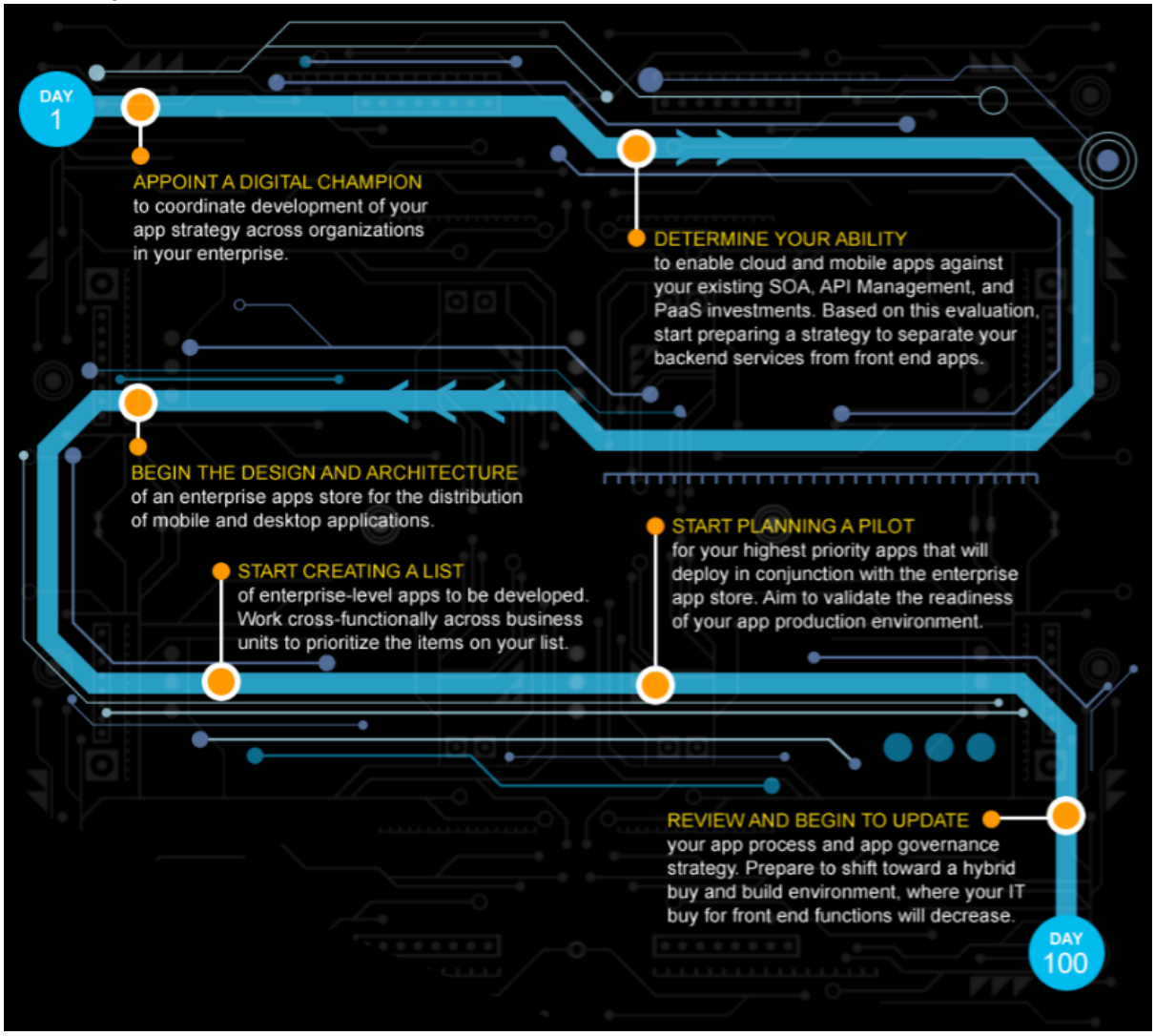


Fig 2: Outsourcing Delivery Model – Initial Stage (Pilot)

From the above diagram, it can be seen that the first step would be to appoint a digital champion i.e. select potential supplier from the market. Afterwards, the services are delivered to the client as per the SOA (Service Oriented Architecture) and other API (Application Programming Interface) with the backend access. The process can then take the second level of deployment of the web as well as mobile platforms and testing can be done at the basic level. Then after, the enterprise can then be developed with the cross-functional business units as well as the primary fist of the competition. The pilot is then released and the deployment can be continued for the actual application with the production environment. The final step would be to review the services that are to be elaborated and enhanced into the new system with the government legislation and the front-end modelling with the functional services as well as the ICT can provide feedback and update the system for the final stage of the delivery model.

Scope

The scope of RBC's outsourcing of the services is as per the eloquent design to manage the risks that are associated with the internal as well as external related services and to serve the organization's prime focus i.e. on the customer service and to maintain stable environment across the services that are being provided by RBC. A few main scope level of requirements are as follows (Arunanthy 2010):

- Achievement of business and IT requirements
- Compliance with contract
- Relationship management
- Functionality and controls of provided services
- Service provider's internal controls
- Fulfilment of assurance charter and compliance requirements

The scope excludes the initial justification and terms and conditions considered relating to the outsourcing process including decision, billing process etc. (Arunanthy 2010).

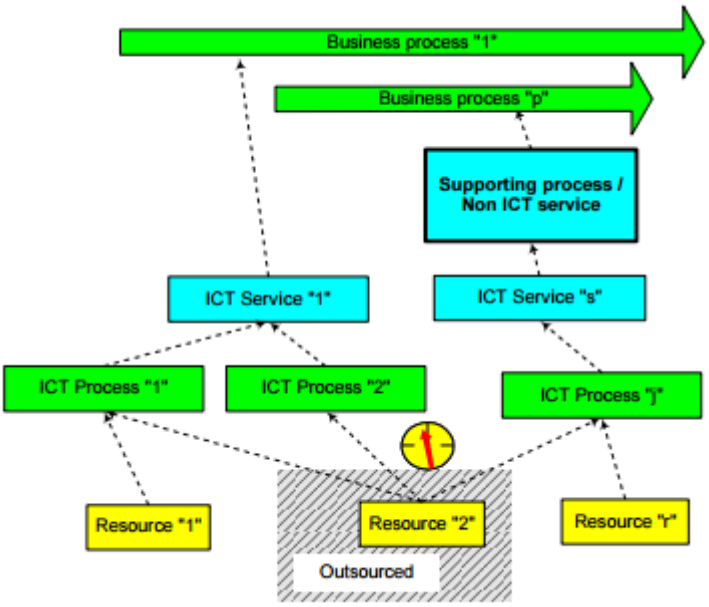


Fig 3: ICT Resource outsourcing (Feuerlicht & Jiri n.d.)

The required place to consider the services that needs the primary request to outsource the activities associated with the operation, management as well as development of the resources. Additionally, the acquisition/development, maintenance/upgrading, customization, and integration of the resource has main disposing effects that can be considered to the liquefaction of the decisive frameworks as well as the information resources are suitable for outsourcing. Here, the outsourcing of the single resource can be less effective whereas the grouping of the services can be technologically more advanced and applied to the benefits of the application process for the operations within the RBC's services (Feuerlicht & Jiri n.d.).

Task 2: Process Flow Model

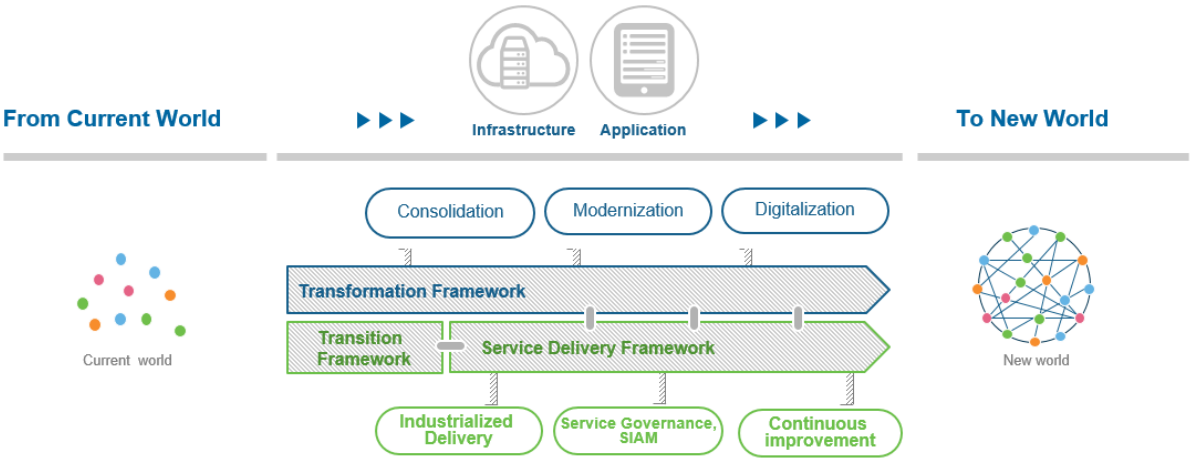


Fig 4: Process Flow Model for RBC's ICT outsourcing to IBM's servers

From the above diagram, we can illustrate that the current application within the system has the services being worked in silos rather the new integration of the infrastructure as well as application of the developed customised services and frameworks that needs to be implemented to migrate the current services over to the new server or new platform. Additionally, the integration process is decide within the contract including SLAs that being defined the transition of the processes as well as delivery of the services that can be served with the industrialised delivery process and governance of the eservices are being handled by the new management of the SIAM and latter continual service improvement defined within the service management (ITSM: IT Service Management) that can be placed within the act to provide quality of service that can make the transition flawless and easy to migrate to the new world of advanced, faster, better aligned service with service enhancements and in the end better client retention and new relationships.

Task 3: Request for Information (RFI)

An RFI is a solicitation sent to a broad base of potential suppliers for the purpose of conditioning, gathering information, preparing for an RFP or RFQ, developing strategy, or building a database which will all be useful in later supplier negotiations about (Negotiation Training 2016):

- The suppliers, including: facilities, finances, attitudes, and motivations
- The state of the supply market
- Supply market dynamics
- Trends and factors driving change
- Alternative pricing strategies
- Supplier competition
- Breadth and width of product/service offerings, by supplier
- Supplier strategic focus, business, and product plans

The procurement of the services can be used to include the RFI that can be advertised into any popular newspapers, websites as well as local banners etc. forms to look for potential suppliers that the following table defines and justifies with the RBC's criteria for a potential supplier that can be compared with the prices if requested. The pricing structure, however, is more complex in terms of the decisions that relates back to the strategic outcomes as well as the lower cost of services plus the options for alternatives and reduction for the identified opportunities to be delivered to RBD's client base (Negotiation Training 2016).

Question	**Answer**
Company name	
Company address	
Company web page	
Main products/services	
Main market/customers	
Ownership structure with ownership status in percentage	
Structure of mother corporation, joint ventures, subsidiaries, partnerships or other relevant relations	
Number of years on the market	
Company location(s)	

Environmental management system(s)	
Quality management system(s)	
Describe your business continuity management	
Employees	
Production	
R&D	
Marketing and sales	
Quality department	
Financial information	
Last year turnover	
Last year gross margin	
Last year profit	
Stock markets where your company is listed	
Contact person and responsible for answering this RFI	
Telephone	
Email	
Capacity conditions today	
Anticipated capacity conditions within 12 months	
Conditions that's listed in the RFI and can't be met	

Description of products or services that are already delivered to customers today, and could be comparable to what is requested in this RFI	
Reference customers using comparable products or services (including contact information)	
Reference customers using your products or services today, although they are not comparable with what is requested in this RFI (including contact information)	
Locations available for delivery, if not worldwide.	
Availability of spare parts and support worldwide	

Table 2: Request for Information (RFI) Draft Document (Sourcing4oem.com 2016)

Task 4: Evaluation methodology

List of KPIs (Key Performance Indicators)

For RBC, the list of KPIs is to be defined in terms of the metrics that being supplied with the services that can be performed with the sales of RBC's applications across Canada as well as across the globe. Additionally, the business is more dependent on the content delivery and overall capacity to client retention and that can now be performed easily with the advancement of ICT and its infrastructural enhancements that can provide more transactional efficiency as well as agility of the services (TechTarget 2016).

Although ITIL has a general set of suggested key performance indicators, there is no single set of universal KPIs that fit every purpose. IT KPIs typically fall into three categories: service delivery effectiveness, service or performance efficiency and agility (responding to change). Organizations like IT service providers also use service availability KPI metrics (TechTarget 2016).

The ITIL concepts are broader and advanced in terms of the fit to purpose and major categories for the service delivery effectiveness, service or performance efficiency and agility (responding to change) needs to be available for the clients and metrics to perform better KPI definition (TechTarget 2016).

Service delivery effectiveness

Throughput

The user load or demand on an application or system(s). Throughput is often expressed as the number of transactions or measure of computing work (TechTarget 2016).

Response time

This KPI covers how much time is needed to complete a transaction. Response time may include multiple infrastructure elements, including servers, networking and storage. It may be tied to service level agreements (SLAs) (TechTarget 2016).

Utilization

The amount of physical or virtual computing resources or capacity that is actually used, as compared to total capacity, yields a utilization rate. For instance, the cloud services are allocated with 100GB of space and all of it is used then the utilisation rate is supposed to be 100% (TechTarget 2016).

Uptime

Uptime measures the percentage of time that an application or system is running. Technologies like clustering, resilient servers and network failover all help gird uptime against individual failures (TechTarget 2016).

At RBC, these metrics are used to evaluate the potential supplier for the tenders to assess for the best score and throughput with lower response time from customers of

RBC. However, the utilisation of the potential services that has increased response time and uptime with 100% then the scores will be better for the potential supplier to be selected including ICT services issues resolution capacity.

Service efficiency or performance

Workload efficiency or performance

This derived index compares a workload's allocated resources to utilized resources. It shows if a workload is wasting resources, oversubscribed (resource starved) or just right (TechTarget 2016).

System efficiency or performance

System efficiency is another derived index comparing a server's allocated resources to its available resources at an optimum load. This shows if the server is wasting resources or is oversubscribed (TechTarget 2016).

The making of these metrics defines that RBC can select potential supplier from their effective performance under pressure as well better track record for the resources allocated to their outsourcing contract.

System agility

Service requests resolved

This measures the number of help desk tickets, support calls or other service requests addressed and resolved successfully within an acceptable time period (TechTarget 2016).

Time to resolution (TTR)

TTR tracks the amount of time needed to address service requests. Examples include how long it takes to evaluate, justify, approve and provision a new VM once a request is received, or make changes to resource allocations once a performance impairment is detected (TechTarget 2016).

At RBC, the MTTR (Mean Time to Repair/Resolution) is addressed with the services to be elapsed across the received changes of the allocated resources as well as the resolution provided with the fastest services as being outsourced.

Service availability

ICT service provider or potential suppliers are supposed to be serving better KPIs to be adopted within SLAs to include the metrics that can make a better range of service outcome.

Resolution percentage

This IT KPI metric measures the percentage of help or service requests addressed within an acceptable period.

Uptime

Uptime is how much the service was available over the billing cycle. Some amount of service disruption is unavoidable, but uptime is a means of gauging SLA adherence and business performance (TechTarget 2016).

- Mean time between failure (MTBF)/ mean time to repair (MTTR)
- MTBF and MTTR gauge fault frequency and how long it takes to fix them.
- Number of action items

This is the number of complaints or service requests that IT receives. Increases in this number indicate problems with certain systems or platforms.

This KPI defines that service availability as in on the days like EOFY (End of Financial Year) the RBC needs to be having the busiest time of the year and the outsourcing services are meant to be provided with better outcomes to produce across the service delivery lifecycle and more importantly, continual service flow without any service interruptions caused or incidents received/resolved in time (TechTarget 2016).

List of SLAs (Service Level Agreements)

The selection of the services that are to be defined in the KPIs, which measure the performance of the service that are being outsourced as well as the aspects that can be described with the key principles driving the selection process that are unique to a given project should be common to all outsourcing projects. In addition, the defined SLAs are more specific to the services that are more to be justified with the behaviour to comply to avoid penalties that are difficult to enforce or achieve and may motivate the wrong behaviour being considered within the SLAs. These criteria needs to be selected with the penalised analysis and usefulness of the SLAs hindsight (IBM Corporation 2015).

Motivate the right behaviour

Each party to the relationship will attempt to optimize their actions to meet the performance objectives defined by the metrics (IBM Corporation 2015).

For an instance, the clients are contacted by the customer service representatives that needs the staff to be numbered with the calls of the daily services and the certainty of the leads that are being declined and called that are being serviced and unhappy about the consumers that requires to meet the deadline of the project to be released .

Metrics within service provides control

Ensure that the metrics measure items within the other party's control. Unfortunately, in the initial spirit of good nature, agreements tend to miss the obvious. For example, a simple requirement that invoices be received within 48 hours may not take into account any delays in the postal system. Conversely, if the service provider's ability to meet objectives is dependent on an action from the client, the client's performance should be tracked and measured (IBM Corporation 2015).

For an instance, the vendor has the accountable services that can be enhanced with the delivery of the project specific cycle to be approved as the request comes from the client.

Easily collected measurements and Metrics in the SLA must be easily collectible so as to rightly measure the effectiveness of contract

While all metrics should (ideally) be captured automatically, in the background, with minimal manual intervention, the truth is that few organizations will have the tools and processes in place to do so at a reasonable cost. Therefore, use metrics that are readily available, and revise when appropriate. In some cases, it will be necessary to devise proxy or alternative metrics if the required data is not easily obtainable (IBM Corporation 2015).

For an instance, taking a case of RBC's customer call centre further, if a client wants to track customer satisfaction, separate customer surveys should ideally be conducted to get an accurate measure, but at the expenditure of additional time and cost.

Set a proper baseline, and reward accordingly

For metrics to be useful, they must be set to reasonable, attainable performance levels. It may be difficult to select an initial, appropriate setting for a metric, especially when a customer does not have any readily available performance metrics or a historical record of meeting those metrics (IBM Corporation 2015).

Anticipate change

Since change is the only constant in business as in life, outsourcing arrangement should accommodate the cycles of demand that require an adjustment in services. If, for example, an organization becomes smaller, it could find itself paying for services that were priced based on conditions that no longer exist, similar situations will arise should an organization grow larger (IBM Corporation 2015).

Keep it simple

Finally, avoid choosing an excessive number of metrics, or metrics that are too complex. At the outset of drafting the SLA, an organization may be tempted to include too many metrics, or those which are extremely convoluted, reasoning that the more measurement points it has, the more control it will have over service provider performance (IBM Corporation 2015).

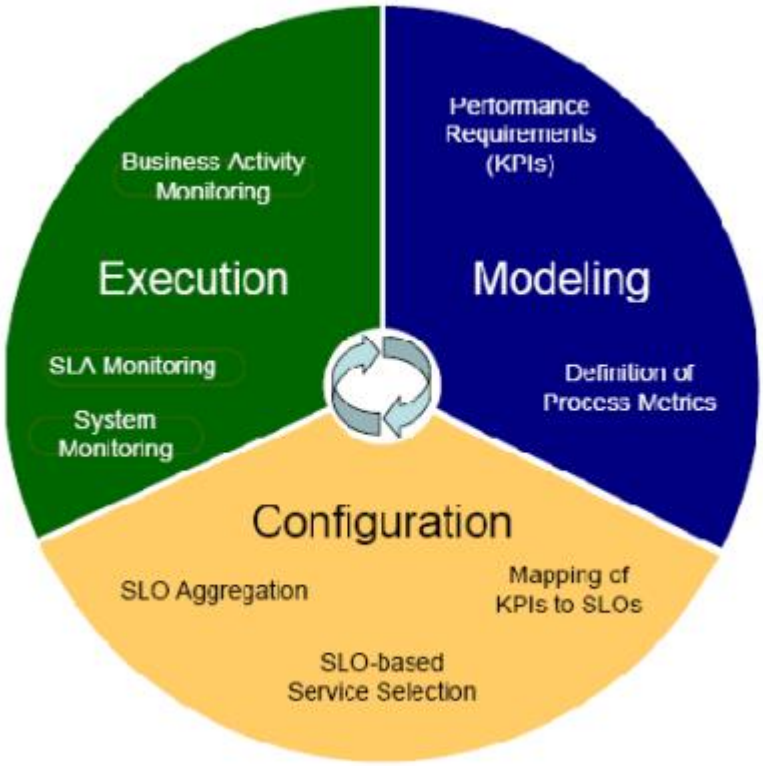


Fig 5: SLA-aware Business Process Lifecycle (Aloussi 2012)

Commitment

The clients require number of account management visits that needs the special access to new developments within the vendor's research and development activities and tours of vendor facilities. In addition, the access to vendor's sensitive information and access to vendor subject-matter experts are essential with quality of vendor-customer executive relationships, because trust ratio = promises made by vendor + promises kept by vendor (CXO Media Inc. 2016).

Flexibility

The willingness or ability to respond to unanticipated demand and willingness to modify order entry systems or other vendor systems facilitating customer is necessary for the flexibility of contract terms and conditions. Moreover, ease of negotiation and willingness to change products or services to meet changing needs of customer are to be measured according to the number of contract disputes (CXO Media Inc. 2016).

Innovation

The innovation takes joint research, design and development along with sharing by the vendor of business improvement strategies that it has adopted, that it believes the customer could use. Customer ability to participate on vendor's customer advisory board are better assessed to progress of vendor in achieving relevant industry certifications (such as the Capability Maturity Model for software vendors) as

continuous improvement ratio = ideas implemented by vendor / ideas suggested by vendor (CXO Media Inc. 2016).

Task 5: Report to CEO

Supplier Selection for better Client Retention for RBC

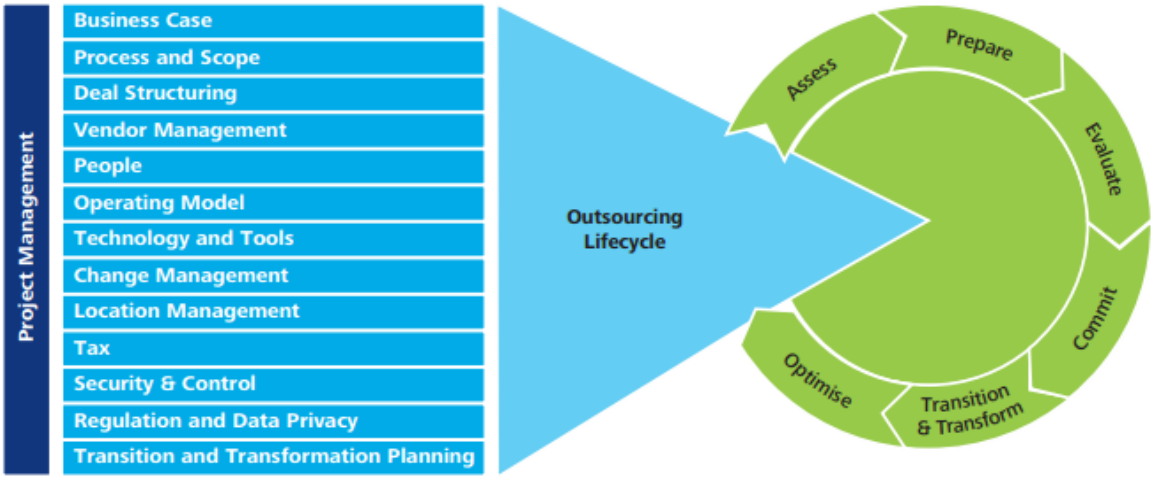
Objectives

The main objectives of this report are to determine the ICT services that are currently being outsourced, and to describe the inherent risks, issues and challenges in ICT outsourcing (Arshad, May-Lin & Mohamed 2007).

Background

The background of this case study includes the evaluation of the options for the services that are causing lack of better client retention and losing majority of clients that requires the attention and needs to be kept being served better in addition to the clients those are new to the RBC and are valuable assets for the business. Please refer to **Appendix 2** for the options that were suggested while forming report 1 for this case study including the **Appendix 3** that suggests the newer cognitive way to handle this issue with the automation of this process including the potential supplier to be IBM with their well-known IBM Watson foundations that provides a plugin for the system to evaluate the client interactions and processes an output from its database from the cloud repository.

Processes undertaken



The six phases of activity can be defined as follows:	
Assess: Define objectives and assess capacity.	**Commit:** Contract development and finalisation.
Prepare: Service level definition and RFP creation.	**Transition and Transformation:** New service implementation.
Evaluate: Response evaluation and supplier selection.	**Optimise:** On-going supplier and vendor management.

Fig 6: Process Undertaken during ICT Outsourcing (Deloitte MCS Limited 2013)

In the above diagram, the illustration defines the investigation of the better or newer services that are to be implemented during the outsourcing process in addition ot the optimisation of the key business processes such as transition of the services and security management including the regulation and data privacy. In the end, the process defines the outsourcing of the business processes or just the ICT department that is formerly called "Business Process Outsourcing (BPO)" (Deloitte Development LLC. 2015).

Scope

The scope of the business case includes the requirements for automation and the opportunities that needs the assessment from the higher authority to consider as a necessary revolution for the business. This includes the process of undertaking the owners of the process and to find out good suppliers who actually undertake the automation process that may impact on the pilot and its implications to further development (Deloitte Development LLC. 2015).

The scope at which the business case is built upon and the support that needs to be benefited to the RBC's client retention capabilities. In addition, the services needs ot be aligned with the SLAs and the strategy to automate the processes needs to be scoped at which the optimal operating model can perform best with the current system with the right team to support the solution and carry out responsibilities. It all requires human capabilities when the monitoring the system comes into play if the machines tend to break at some point (Deloitte Development LLC. 2015).

Other areas of scope includes the identification of the automation process and selecting right partners for the services that cater to the business needs of RBC including comparison of the pricing models from the suppliers (Deloitte Development LLC. 2015).

Finally, the planning of the scoped automated pilot and the duration that needs to be staged into the strategic and scaled process that ensures the impacts on stakeholders with more than the expectations (Deloitte Development LLC. 2015).

Solutions

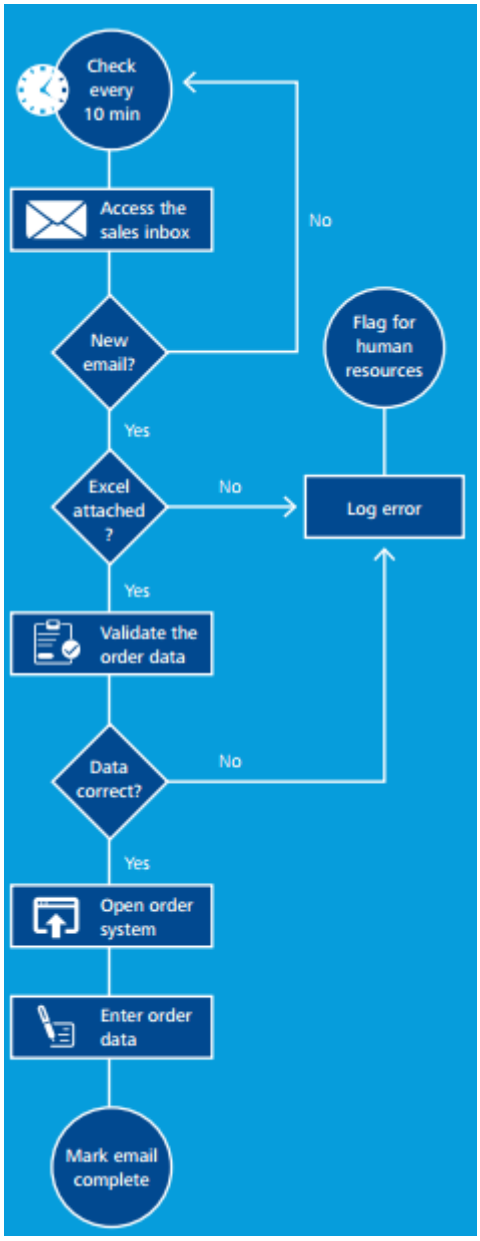


Fig 7: Automating digital media requests (Deloitte Development LLC. 2015)

One person was dedicated to processing internal orders for digital media, received as spreadsheets attached to emails to a team inbox. The process required careful examination of the complex request forms to validate the data before copying the request into the order system. The volume of orders was highly variable, and in busy periods there would be a longer delay between receipt of the request form and entry into the system (Deloitte Development LLC. 2015).

The solutions for the new system are to be assessed as per the requirements of the project that is to align the services with better client relationship. In the flowchart below, the process shows that the services are measured with better dedication just for an email services as well as media services such as spreadsheets and other types

of documents. To validate the information, the request is being made to the higher periods of time with the longer delays across the recipients as well as the receipt are generated and entered into the system (See **Appendix 3**) (Deloitte Development LLC. 2015).

This process was tested by using a robot that needed no more than three hours a day to process all requests, while the person now resolves any exceptions due to bad data. The redeployment process by the person is now reassigned to other tasks including the process handing process minimised. With only three hours spent processing requests, the robot still had more than 85% capacity remaining that could be spent on other processes. The following are a few solutions provided by the process automation (Deloitte Development LLC. 2015):

- Allow sufficient time for deployment and automation development
- Confirm that processes are properly understood and documented
- Fully account for the handling of errors and exceptions
- Identify ways to mitigate any organizational resistance to change
- Bring IT on board early
- Gather or prepare representative test data
- Confirm that there are no system or data access issues
- Resolve data quality issues before automating
- Develop a thorough disaster recovery plan
- Provide up front and ongoing training to end users
- Be sensitive to fear of job loss and "being replaced by robots"
- Confirm that you are prepared for maintaining the solution post-deployment
- Account for headcount reduction or redeployment or role definition

While evaluating with the suppliers, there were a few things that came out, including following few aspects to consider.

The automation process, focused on the development of features for enterprise readiness incorporated increasingly dynamic assignment of workload to robots, improved monitoring of robots' activity via dashboards and reports, and version control and release management functionality to support process definition and deployment across organizational boundaries (Deloitte Development LLC. 2015).

The "Analysis as a Service" can provide an end-to-end support for a particular business need. Merging the abilities of cognitive tools with the ability to rapidly and autonomously execute rule-based steps. In addition, the vendors can also support integrated, business-specific solutions to their customers, potentially freeing the customers from the effort and expense of integrating the components themselves (Deloitte Development LLC. 2015).

Supplier's evaluation

The suppliers are the key to this ICT outsourcing, for this business case the evaluation is based on a few aspects of business to business i.e. RBC and IBM needs to have a few criteria as mentioned below (American Institute of CPAs 2016):

- Better reputation and cultural fit without any conflicts
- Vendor history including any peaks/downfalls along with the corporate disputes
- Vendor financial profile including market shares, financial statements etc.
- Vendor industry including contracts and other web/local entities associated with them
- Resources distribution including company location and employee and data centres' location
- Vendor experience with the technological environment being used into the client (RBC) system including examples
- Vendor partnership records including the services/entities associated including references and contact names

There are three types of evaluation methodologies for suppliers to be addressed to the requirements of the criteria discussed below.

The first and foremost approach includes the trade-offs that are related with the relationships with the suppliers and their dimensions that are simpler an often used while in practice. Additionally, the simplicity of this approach defines the preferences for buyers to select suppliers that out-weigh the effects (Beil 2009).

The second approach defines the detailed preferences of the models that define the approach to justify the key aspects of the models that can define the key aspects of the supplier and their domains that supply a multi-product where the buyer can create a subset of the quantitative items and offer discounts for the service package (Beil 2009).

The final and third approach discusses the buyer behaviour on the aspects that need the preferences and attributes that define themselves as well as the observation within the choices available within the market about the attributes and resources required (Beil 2009).

Recommendations

- Start with clear business-driven objectives for outsourcing, cost reduction alone is not a strong reason to outsource (Integrated Business Technologies 2016)
- Strong Management team – Management of the resources can be outsourced by building a team of expert who handle the management of the business needs as well as the business requirements that dictate the changes and the time allocated to them (Integrated Business Technologies 2016)

- Periodical review meetings – Regular review meetings are essential not only to resolve issues but to monitor and discuss any future changes to the delivery arrangement (Integrated Business Technologies 2016)
- Incentives and penalties around SLAs – Incentives are as important as penalties, as the need for the provider to exceed expectations not just to meet them and the agreed Service Level Agreements should be enforced as not to make them worthless (Integrated Business Technologies 2016)
- Training provider personnel – This is an ongoing necessity in order to maintain the provider's knowledge in regard to a client's business processes and understanding the cultural differences (Integrated Business Technologies 2016)
- Obtain staff buy-in to avoid your efforts being derailed and provide a detailed scope and documented demarcation points to minimise future mismatching of service expectations (The Frame Group Pty Limited 2016)
- Speak in a common language so that your requirements aren't misunderstood and align outsourcing services to your organisation's requirements to avoid a mismatch of services (The Frame Group Pty Limited 2016)
- Process Improvement – The ICT outsourcing needs to be maximised with the workflow and its ability to efficiently manage the importance of the savings as well as the offerings that are receptive and services are automated with most of the user interactions (see **Appendix 3**) leveraging the investment capital and the drive-down costs (CXO Media Inc. 2016).

Conclusion

By and large, business dependably endeavor to make things that client needs that items and administrations to show signs of improvement, quick & shoddy. In today's situation, client retention and outsourcing of ICT needs convenience for the needs of the business on the grounds that it gets to be fundamental for the achievement & survival of the business. ICT outsourcing is advancing ceaselessly and getting to be essential as the innovation develops & it is something that ought to be taken point of preference & executed. By commencement of cognitive solutions there are unlimited conceivable outcomes for business & clients.

References

Al-Ahmad, W & Al-Oqaili, A 2013, 'Towards a unified model for successful implementation ofoutsourcing and reversibility of information systems', *Journal of King Saud University - Computer and Information Sciences*, vol XXV, no. 2, pp. 229-240.

Aloussi, SA 2012, 'SLA Business Management Based on Key Performance Indicators', Conference Proceedings, 978-988-19252-2-0 , World Congress on Engineering , London.

American Institute of CPAs 2016, *The Pros and Cons of IT Outsourcing*, viewed 31 May 2016, <http://www.journalofaccountancy.com/issues/1998/jun/antonuci.html>.

APICS 2004, 'MANAGING THE RISKS OF OUTSOURCING: A SURVEY OF CURRENT PRACTICES AND THEIR EFFECTIVENESS', White Paper, APICS and Protiviti.

Arena Solutions, Inc. 2016, *Manufacturing Outsourcing: 7 Common Pitfalls to Avoid*, viewed 19 June 2016, <http://www.arenasolutions.com/resources/articles/manufacturing-outsourcing-7-common-pitfalls-to-avoid/>.

Arshad, NH, May-Lin, Y & Mohamed, A 2007, 'ICT Outsourcing: Inherent Risks, Issues and Challenges', *WSEAS TRANSACTIONS on BUSINESS and ECONOMICS*, vol IV, no. 8, pp. 117-125.

Arunanthy, N 2010, 'Outsourced Information Technology Environment Audit', White Paper, SANS Institute.

Beil, D 2009, 'Supplier Selection', Research Paper, Stephen M. Ross School of Business, New York.

Blind, K, Pohlmann, TRF & Wunsch-Vincent, S 2014, 'The Egyptian Information Technology Sector and the Role of Intellectual Property: Economic Assessment and Recommendations', Economic Research Working Paper No. 18, WIPO Economics & Statistics Series, Bloomsbury.

BRÂNDAŞ, C 2010, 'Risks and Audit Objectives for IT Outsourcing', *Informatica Economică*, vol XIV, no. 1, pp. 113-118.

Business Wire 2016, *Clear Vision Information Systems CEO Says Outsourcing Technology Can Save Costs and Add Efficiency and Focus for Many Companies*, viewed 29 May 2016, <http://www.businesswire.com/news/home/20150727005909/en/Clear-Vision-Information-Systems-CEO-Outsourcing-Technology>.

CBS Interactive 2016, *10 things to consider when you outsource IT*, viewed 1 June 2016, <http://www.techrepublic.com/blog/10-things/10-things-to-consider-when-you-outsource-it/>.

Corporate Computer Services, Inc. 2016, *IT Outsourcing: The Reasons, Risks and Rewards*, viewed 28 May 2016, <http://www.corpcomputerservices.com/articles/outsourcing-reasons>.

CXO Media Inc. 2016, *5 Ways to Build Better IT Outsourcing Relationships*, viewed 20 June 2016, <http://www.cio.com/article/2390857/outsourcing/5-ways-to-build-better-it-outsourcing-relationships.html>.

CXO Media Inc. 2016, *Vendor Management: How Do You Measure Value for the Money?*, viewed 14 June 2016, <http://www.cio.com/article/2437136/outsourcing/vendor-management--how-do-you-measure-value-for-the-money-.html>.

Deloitte Development LLC. 2014, 'Guiding principles to service level agreements - Business Process Outsourcing: Finance and Accounting', White Paper, Deloitte Development LLC., New York.

Deloitte Development LLC. 2015, 'Service Delivery Transformation: Automate this — The business leader's guide to robotic and intelligent automation', The Outsourcing Unit Working Research Paper Series, Deloitte Development LLC., London.

Deloitte LLP 2014, 'The Next Generation of IT Operating Models: 6 Key Thems for CIO's', White Paper, Deloitte LLP, London.

Deloitte MCS Limited 2013, 'The Outsourcing Handbook: A Guide to Outsourcing', White Paper, Deloitte MCS Limited, London.

Dimension Data 2016, *IT outsourcing*, viewed 2 June 2016, <http://www.dimensiondata.com/Global/Services/IT-Outsourcing>.

Feuerlicht, G & Jiri, V, 'Key Success Factors for Delivering Application Services', Software Engineering, University of Technology, Sydney.

Flatworld Solutions Pvt. Ltd. 2016, *The Advantages and Disadvantages of Outsourcing*, viewed 31 May 2016, <https://www.flatworldsolutions.com/articles/advantages-disadvantages-outsourcing.php>.

Flatworld Solutions Pvt. Ltd. 2016, *The Pros and Cons of Outsourcing*, viewed 31 May 2016, <https://www.flatworldsolutions.com/articles/pros-cons-outsourcing.php>.

Friedrich, F, Mendling, J & Puhlmann, F 2010, 'Process Model Generation from Natural Language Text', Jan Mendling, Berlin.

Fulton, A, Muir, D & Frits, J 2006, 'IT Outsourcing: A BuyIT Supply Chain Guideline ', White Paper, BuyIT Best Practice Network, IT World Limited, SW.

Getronics 2010, 'DYNAMIC OUTSOURCING SCORECARD', White Paper, Getronics.

Harvard Business School Publishing 2016, *IT Outsourcing: Maximize Flexibility and Control*, viewed 17 June 2016, <https://hbr.org/1995/05/it-outsourcing-maximize-flexibility-and-control>.

Hearst Newspapers, LLC 2016, *Pros and Cons of Outsourcing IT*, viewed 31 May 2016, <http://smallbusiness.chron.com/pros-cons-outsourcing-it-1773.html>.

IBM Corporation 2015, 'Strategic Outsourcing Delivering on Great Expectations', White Paper, IBM Corporation.

IBM Corporation 2016, *AlchemyVision and Visual Recognition have merged*, viewed 23 May 2016, <https://www.ibm.com/blogs/watson/2016/05/visual-recognition-update/>.

IBM developerWorks 2016, *Combining Natural Language Classifier and Dialog to create engaging applications*, viewed 25 May 2016, <https://developer.ibm.com/watson/blog/2015/09/28/combining-natural-language-classifier-and-dialog-to-create-engaging-applications-2/>.

IBM Knowledge Center 2016, *Key performance indicators (KPIs) and service level agreements (SLAs)*, viewed 10 June 2016, <http://www.ibm.com/support/knowledgecenter/SSFTDH_8.5.6/com.ibm.wbpm.wle.editor.doc/topics/configuring_kpis_slas.html>.

IBM Watson Developer Cloud 2016, *Overview of the Natural Language Classifier service*, viewed 24 May 2016, <https://www.ibm.com/smarterplanet/us/en/ibmwatson/developercloud/doc/nl-classifier/>.

Integrated Business Technologies 2016, *Outsourcing – what risks should you be aware of?*, viewed 18 June 2016, <http://www.ibt.com.au/outsourcing-what-risks-should-you-be-aware-of/>.

International Institute of Business Analysis 2013, 'Business Process Modeling', Webinar, International Institute of Business Analysis, Whitby.

International Institute of Business Analysis 2015, *BABOK—A Guide to the Business Analysis Body of Knowledge*, 3rd edn, International Institute of Business Analysis, Toronto.

Koster, SR 2009, 'An evaluation method for Business Process Management products', Graduation Thesis, Business Information Technology, University of Twente, Capgemini Nederland B.V., Papendorpseweg.

Laurent, P, Chollet, T & Elsa, H 2014, 'Intelligent automation entering the business world', *AI Magazine*, vol XXVII, no. 3.

Massachusetts Institute of Technology 2016, *The Risks of Outsourcing IT*, viewed 2 June 2016, <http://sloanreview.mit.edu/article/the-risks-of-outsourcing-it/>.

Negotiation Training 2016, *Request for.Procurement Processes (RFT RFQ RFP RFI)*, viewed 27 May 2016, <http://www.negotiations.com/articles/procurement-terms/>.

Office of the Australian Information Commissioner 2015, *Guide to securing personal information: 'Reasonable steps' to protect personal information*, viewed 6 June 2016, <https://www.oaic.gov.au/agencies-and-organisations/guides/guide-to-securing-personal-information>.

OSF Global Services 2012, 'Steps to select the right Outsourcing Vendor', White Paper, OSF Global Services.

Palvia, PC 1995, 'A dialectic view of information systems outsourcing: Pros and cons', *Information & Management, Elsevier*, vol XXVIV, pp. 265-275.

Penton 2016, *The Pros and Cons of Outsourcing IT*, viewed 30 May 2016, <http://tech4businessnow.com/the-pros-and-cons-of-outsourcing-it/>.

Pillsbury Winthrop Shaw Pittman LLP 2016, *Managing Risks in Outsourcing: Part 1 – Supplier Selection*, viewed 6 June 2016, <http://www.sourcingspeak.com/2011/09/managing-risks-in-outsourcing-part-1-supplier-selection.html>.

Podeswa, H 2009, *THe Business Analyst's Handbook*, 1st edn, Cengage Learning, Boston.

Satzinger, JW & Jackson, RB&BSD 2012, *Systems analysis and design in a changing world*, Course Technology, Boston, Mass.

Satzinger, JW, Jackson, RB & D., BS 2012, *Systems Anaysis and Design: In a Changing World*, 6th edn, Cengage Learning, Boston.

Share 2015, *Classifying Research Activity in SHARE with Natural Language Processing*, viewed 22 May 2016, <http://www.share-research.org/2016/05/classifying-research-activity-in-share-with-natural-language-processing/>.

Simon Wallace 2016, *Sub-contractor and Contract Management*, viewed 6 June 2016, <http://www.epmbook.com/sub.htm>.

Slade, R 2012, 'Governance of Application Development Outsourcing (GADO)', White Paper, Rational Tiger Team, IBM Corporation.

Sourcing4oem.com 2016, 'RFI Tempelate', Reference Report, Sourcing4oem.com.

Synoptek, Inc. 2016, *Complete IT Outsourcing Services*, viewed 2 June 2016, <https://synoptek.com/it-infrastructure-services/complete-it-outsourcing/itsm/>.

TechTarget 2016, *Checklist of IT KPIs for responsive data center ops*, viewed 12 June 2016, <http://searchdatacenter.techtarget.com/tip/Checklist-of-IT-KPIs-for-responsive-data-center-ops>.

The American Society of Clinical Oncology 2016, *The Pros and Cons of Outsourcing Information Technology*, viewed 30 May 2016, <http://jop.ascopubs.org/content/4/3/126.full>.

The Frame Group Pty Limited 2016, *The 4 golden rules of outsourcing, and how to avoid the common pitfalls*, viewed 19 June 2016, <http://www.framegroup.com.au/the-4-golden-rules-of-outsourcing-and-how-to-avoid-the-common-pitfalls/>.

The Institute of Internal Auditors 2012, *Information Technology Outsourcing*, 2nd edn, Global Technology Audit Guide, Miami.

TRAINING INDUSTRY, INC. 2016, *Request for Information (RFI)*, viewed 5 June 2016, <http://www.trainingindustry.com/wiki/entries/request-for-information-(rfi).aspx>.

TTRcorp 2016, *IT Outsourcing Basics: Pros and Cons*, viewed 30 May 2016, <http://ttrcorp.com/it-outsourcing-basics-pros-and-cons/>.

Appendices

Appendix 1: Journal

As this journal is an active document, it includes activities from the previous reports.

Date of Research	Summary of activities	Tasks planned	Duration (hours)	Tasks completed/Actions required
17/03/2016	Review of current system and its functionality in regards to the outcomes	Interviewing the staff and other key personnel to develop the project outline	3	Data collection
18/03/2016	Review the environmental factors that might affect the key concern of this new change	Drafting of problem or opportunity in the scheduling process for this case	4	Drafting a System Vision Statement
20/03/2016	Reviewing and categorising the options in a tabular form	Developing the options matrix table with its problems as well as opportunities	2	Drafting of current problems/opportunities
21/03/2016	Reviewing the structure of current system and defining objectives and aligning the business outcomes	Designing the system vision statement that can show proper outcomes with the new solution	3.5	Creating a System Vision Statement
23/03/2016	Reviewing the new vision and conducting an object related analysis	Creating the project deadline as well as listing of the options of the outcomes of new system	4	Drafting of the project objectives
24/03/2016	Reviewing the objectives as well as understanding the in scope and out of scope	Analysing the scope and define objectives for this task and view out of scope for the plugin	2.5	Describing the scope
25/03/2016	Reviewing the key roles and responsibilities of the stakeholders who	Review and locate stakeholders list, list stakeholders of RBC	2	Stakeholders listed

	are involved in the system			
28/03/2016	Create a WBS by reviewing the scope and objectives defined	A WBS will focus on each task of the lifecycle of this project	4	Design Work breakdown structure
30/03/2016	Define the questions and finalise the appropriate set of questionnaire	Develop a full question set to ask CEO for the organizational-level information	3	Drafting the interview with CEO and agenda of the project
31/03/2016	Arranging the document and prepare a formatted analysis	Describe each term efficiently and reviewing them as per the requirements of the new system	4-5	Finalize the case study
02/05/2016	Review services provided by Royal Bank of Canada (RBC) and more about its business processes	Review Journal and the project document, research for more articles for journals online	2.5	Research and analysis
03/05/2016	Reviewing CIS5302 Forums on the Study Desk	Understanding the concepts and developing the ideas through the forum posts	3	
04/05/2016	Reviewing the BPMN 2.0 and UML notations	UML diagrams and use cases were reviewed, BPMN notations were defined for the business processes	3	All
07/05/2016	Understanding the as-is and to-be diagrams according to the system specifications	Reviewing the textbook as well as some research on the internet	2	All
07/05/2016	Comparing and defining the key differences between as-	Research online and reviewing relevant concepts from the textbook	4	Developing as-is and to-be

	is and to-be system diagrams and processes			processes in BPMN notation
08/05/2016	Creating and documenting organizational change and business impacts of the system	Reviewing USQ library resources as well as Scholarly articles	4	Documenting the anticipated business processes
08/05/2016	Check for CIS5302 Forums	Check on the Study Desk for forum posts Q/As	3.5	
08/05/2016	Understand Agile project Management Reviewing the agile project management	Research online and reviewing relevant concepts from the textbook	3	Understood agile deliverables
11/05/2016	Reviewing and developing product backlog	Documenting and defining product backlog for RBC	4	Product backlog defined
11/05/2016	Gap analysis for as-is and to-be process comparison	Developing organizational readiness criteria	2	Transitioning and developing GAPs
14/05/2016	Product backlog prioritization according to MOSCOW criterion	Requirement prioritization lists	1	Listing prioritised Requirements
15/05/2016	User Interface design research on best practices	UI assignment for the system and best practices with a strategy identification	2	Developing UI screen designs
15/05/2016	Reviewing acceptance criteria	Conducting online research and CIS5302 lecture recordings	2-3	Documented acceptance criteria
16/05/2016	Conducting research on Business Analyst job descriptions	Business Analyst profiles review on job portals like	2	BA job descriptions

		Seek and Indeed along with ACS definitions		
20/05/2016	Reviewing document prior to developing executive summary	Writing executive summary	2	Executive summary
22/05/2016	Final documentation and review	1. Complete report 2. Add references and cite sources	6	Submit report
24/05/2016	Identify sourcing options and baseline the scope.	Map business model processes, prioritize options based on benefits and risks, and develop market analysis and benchmarks. (The Institute of Internal Auditors 2012)	4	Report on Outsourcing of ICT
25/05/2016	Build a reliable business case.	Conduct detailed business risk and benefit analysis, factor in execution risks and failure impact, select best option and detail cost/ benefits, identify relationship between strategy (The Institute of Internal Auditors 2012)	5	Report on Outsourcing of ICT
26/05/2016	Select a provider and design a contract that promotes success.	Detail requirements, scope, and requests for proposals, select provider and perform due diligence, negotiate contract, develop exit plan (The Institute of Internal Auditors 2012)	4	Report on Outsourcing of ICT
28/05/2016	Execute transition as planned. Initiate new operations	Roll out transition plan. Transfer/manage resources. Transform process. (The Institute of Internal Auditors 2012)	3	Process Flow Model
29/05/2016	Oversee and control the outsourced operation.	Manage relationship. Assess results and performance. Design ongoing reporting and	3	Process Flow Model

		process improvement model. (The Institute of Internal Auditors 2012)		
30/05/2016	Ensure the renewed relationship evolves and improves.	Gather all operational, cost, quality, and relationship issues. Benchmark and review current market studies. Establish new targets to improve contract. (The Institute of Internal Auditors 2012)	3	Report on Outsourcing of ICT
02/06/2016	Ensure that the arrangement can be unwound and considered in business case/strategy	Make decision to bring back in-house and identify the impact of doing so. Determine how to change vendor. Identify business case impact. (The Institute of Internal Auditors 2012)	4	Report on Outsourcing of ICT
04/06/2016	Traveling service provider sites	Identify the service provider sites in early planning stage and plan accordingly to accommodate the cost and time.	3-4	RFI
05/06/2016	Accessing the service provider sites	Identify the protocols to access the service provider sites in advance to avoid unnecessary delays.	3	RFI
06/06/2016	Scheduling meetings with the service provider personal	Identify the appropriate personal for the meeting in advance utilizing resources like organization chart to avoid meeting reschedules.	2	Evaluation Methodology
08/06/2016	Working from the service provider sites	Verify and request an appropriate working area in advance, to ensure a suitable area to work with confidential information and data.	2	Evaluation Methodology
09/06/2016	Limited access to audit evidences and Information	Provide a requirement list or deliverable list in advance, to ensure the	4	Evaluation Methodology

		sufficient time for evidence collection.		
11/06/2016	Data provided is difficult to analysis (e.g. paper evidence and scanned documents)	Clarify that the advantages of data analysis such as trends and pattern. Request the data that can be analysis where possible in Advance	2	Report to CEO
14/06/2016	Contradicting audit evidences or statements	Clarify with appropriate upper management, to identify the correct evidence or statement. Do the necessary notification and escalation where needed.	5	Report to CEO
16/06/2016	Handling the Intellectual Property Right data and information	Identify the Intellectual Property Right data and information utilizing resources like contract.	4	Report to CEO
21/06/2016	Finalising of the research	Referencing using Harvard AGPS style referencing	4-5	Completed
22/06/2016	Restructuring and realigning	The research and rephrasing the document	6-8	Completed
23/06/2016	Formatting and finalising	Adding Executive Summary and Letter of Transmittal and professionalism for the report	5-6	Completed
23/06/2016	Submit the report	Final submission of the report	0.5	Completed

Table 3: Journal

Appendix 2: Report 1 (Ref#)

Pros	Cons	Risks	Benefits	Costs
Option #2.01: Sales force with on premise NLP Solutions				
Currently Easy to find connection with the out of the box working model	Introduce through an old client as per the newly proposed system however with less	Reduced risks of cloud based NLP solutions but data storage is located locally at a geographical	CIO will have security wide data of all stakeholders as no data sovereignty issues	Refer Appendix A along with the proposed description i.e. -

and support services	functionality as the communication metadata has to be defined manually in the local server	location, which may be affected with act of God		This case may take up to 20 weeks of time to reach final stage of SDLC lifecycle (Satzinger & Jackson 2012).
Option #2.02: Client retention				
Sales leader will contact users that are existing within the system with the pre-defined procedures and common interface that was being used	Acknowledgement tools can still be defined as to speed up the slow follow-up process	Risk losing client as the system will perform slowly which will reduce interface performance and unsatisfied clients, unnecessary more time invested with BA and workforce	Rebuilding the client relationships as well as ensuring the reliability of the current system with future business objectives explained and lower development costs with agility in workforce as the similar standard environment to work for IT staff	This case may take up to 6-8 weeks of time to reach final stage of SDLC lifecycle (Satzinger & Jackson 2012).
Option #2.03: New client development with strong informal referral				
Sales leader will contact users that are new to the system with the pre-defined procedures and common interface that was being used, will require remote mobility of the sales reps	Acknowledgement tools can still be defined as to speed up the slow follow-up process	No prior connection with client resulting in losing client before creating any relationships with them, unnecessary more time invested with BA and workforce	Formulating new client relationships as well as ensuring the reliability of the current system with future business objectives explained and lower development costs with agility in workforce as the similar standard environment to work for IT staff	This case may take up to 10 weeks of time to reach final stage of SDLC lifecycle (Satzinger & Jackson 2012).

Option #2.04: Do nothing				
Saves training costs for team and management at zero cost	Higher production loss	Risk losing old clients as well as no prior connection with new clients, risk of falling behind with newer developments	Maybe the lower level staff get some benefits with this option as no extra efforts to understand the use of the system	Upfront at zero cost as well as a higher loss of production will create a massive cost within the organization

Table 4: Options for the new system requirements

Appendix 3: Features and Capabilities

Combined visual recognition capabilities

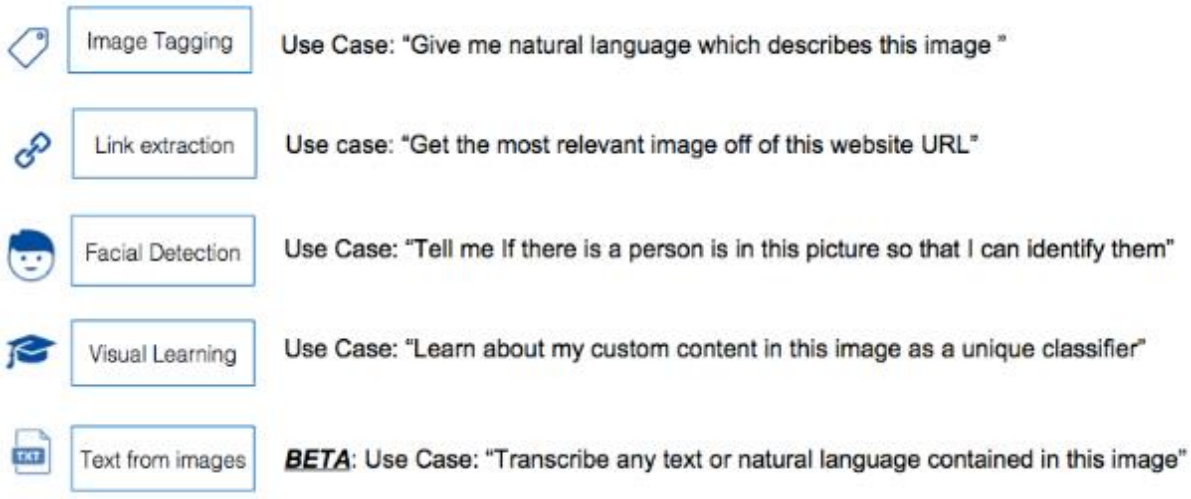


Fig 8: Multi-class training comes to Visual Recognition (IBM Corporation 2016)

Our team has been hard at work brainstorming and building new capabilities for Visual Recognition. In addition to keeping existing features, the unified Visual Recognition will introduce multi-class training, improved algorithm accuracy, and faster performance (IBM Corporation 2016).

With multi-class training and the ability to train for multiple custom visual classifiers at once, users will be able to identify and attribute images to more than two classes at a time, opening up possibilities to adapt Watson to a broader range of image recognition challenges (IBM Corporation 2016).

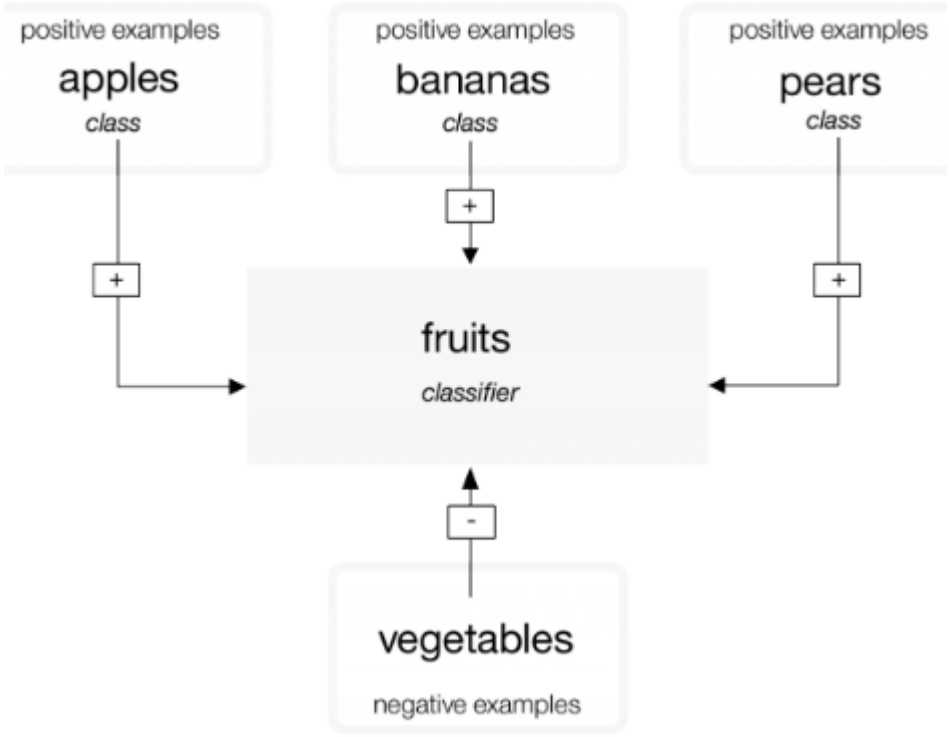


Fig 9: NLC working example

Benefits

The Natural Language Classifier simplifies how to take advantage of machine learning algorithms. You don't need a background in natural language processing (NLP) or machine learning. The service is available through an API, so you can focus on your own business logic and application code (IBM Watson Developer Cloud 2016).

The Natural Language Classifier is designed to be trained easily for your use case and data. The service is "well-read" in the content of Wikipedia. That background knowledge means that it can return classes for texts that it has not seen in training (IBM Watson Developer Cloud 2016).

Because the service is hosted by IBM, you get to take advantage immediately of every improvement that we make. And the scalable IBM infrastructure removes the need for you to staff your own highly available data centre (IBM Watson Developer Cloud 2016).

Natural Language Classifier (NLC) is designed to enable your application to understand natural language and react accordingly based on the meaning behind the text. It is based on deep learning, a relatively recent set of approaches with similarities to the way that the human brain works. Deep learning algorithms offer state of the art approaches in image and speech recognition, and NLC now applies deep learning technologies to text classification. Read Rob Yates' recent blog post that provides additional details and context about the service (IBM developerWorks 2016).

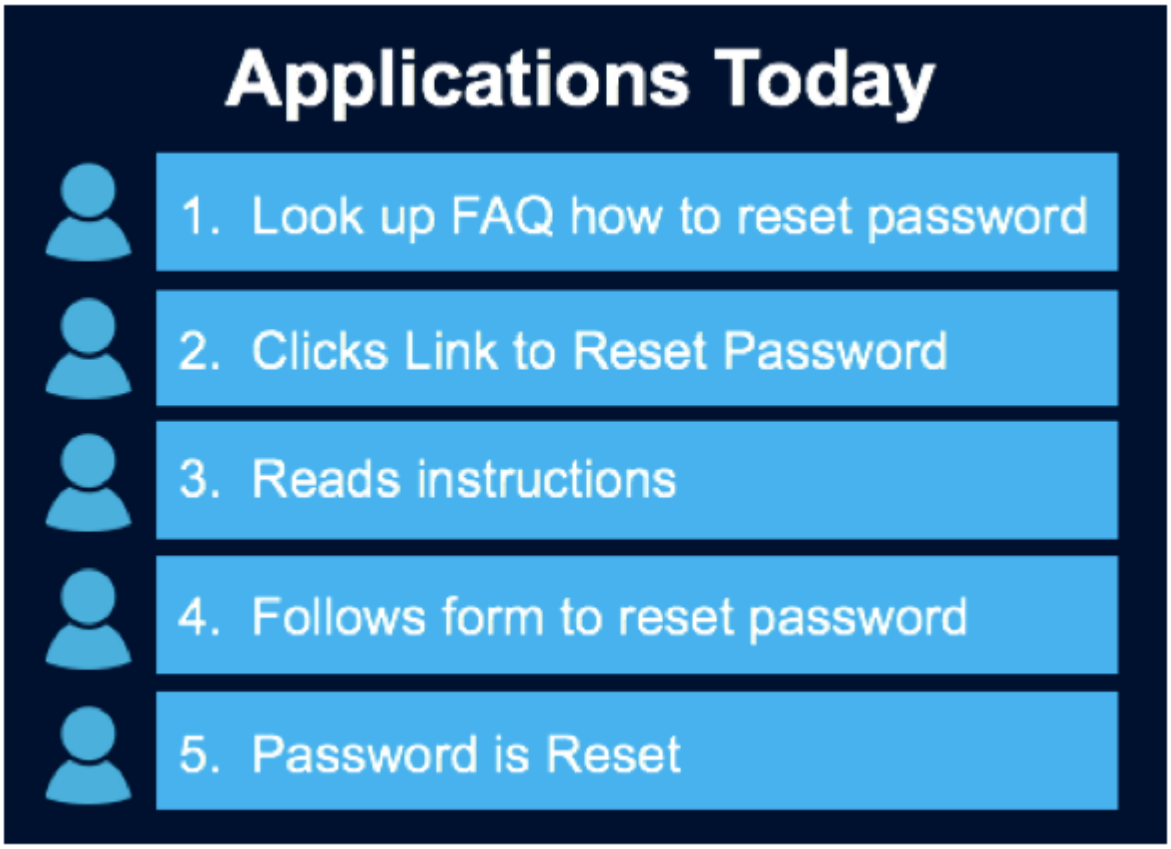


Fig 10: Password reset request to NLC (IBM developerWorks 2016)

There have been a number of virtual agents available for some time, however Watson's unique combination of NLC and Dialog makes it possible to build a much more sophisticated virtual agent. Using a deep learning model coupled with a Dialog system you could create a virtual agent that rivals first-level customer support representatives and provide a great experience for users. Imagine a website where you need to login and you forgot your password. Currently that experience requires you to go to multiple web pages to reset your password, and sometimes wait for an e-mail. With NLC and Dialog you could create a simple application where, through natural language, a user can reset their password (IBM developerWorks 2016).

Fig 11: Password reset performed by NLC (Natural Language Classifier) (IBM developerWorks 2016)

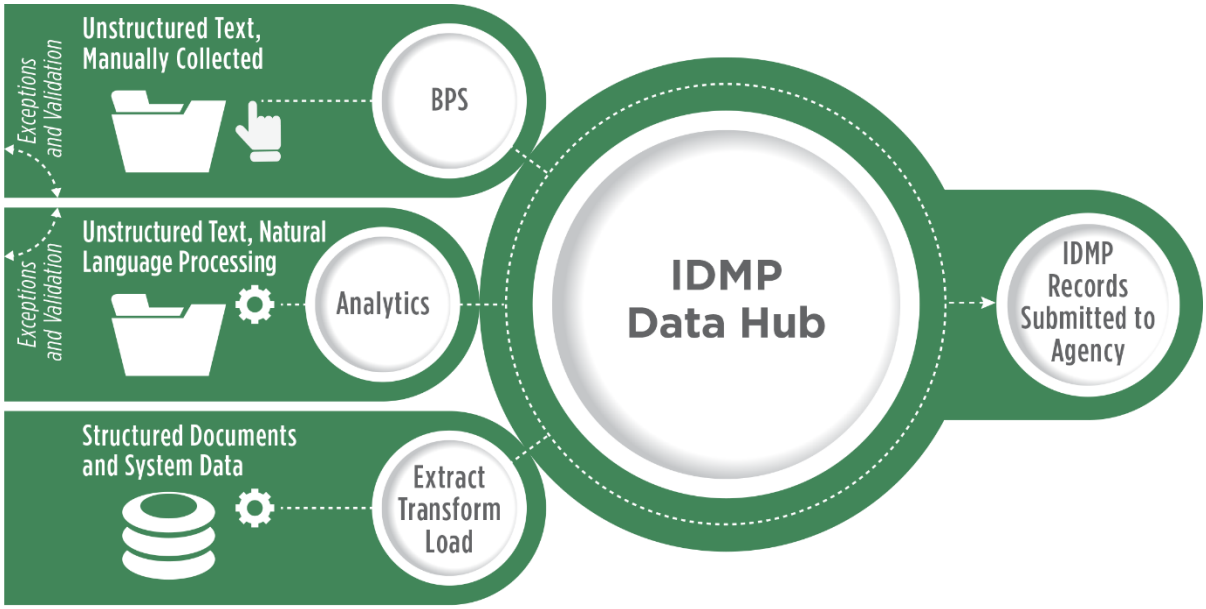


Fig 12: Working of NLP in an Enterprise

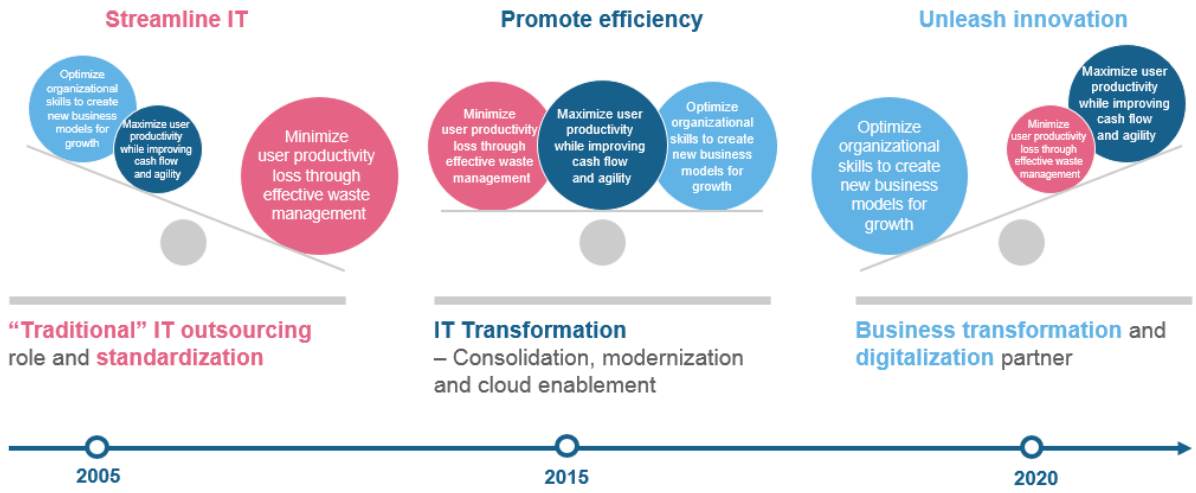


Fig 13: Life Cycle of IT Outsourcing

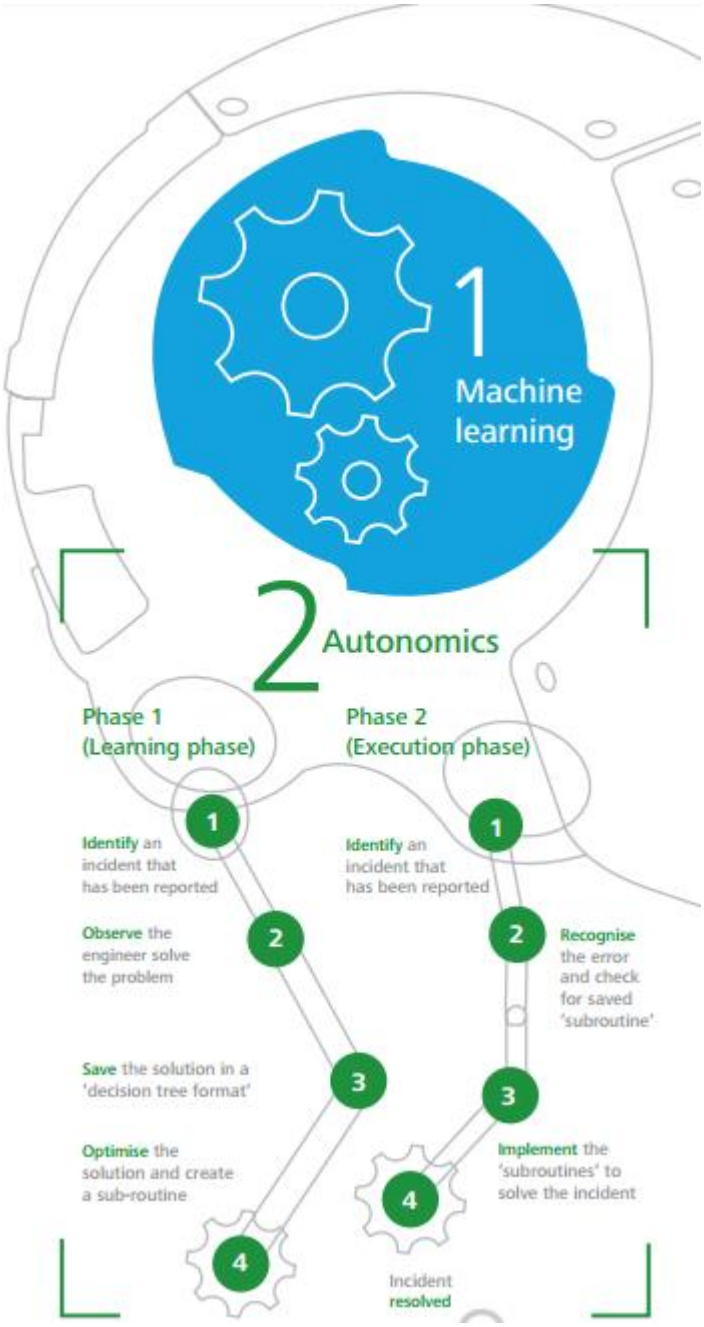


Fig 14: Deep Learning Stages 1&2 (Laurent, Chollet & Elsa 2014)

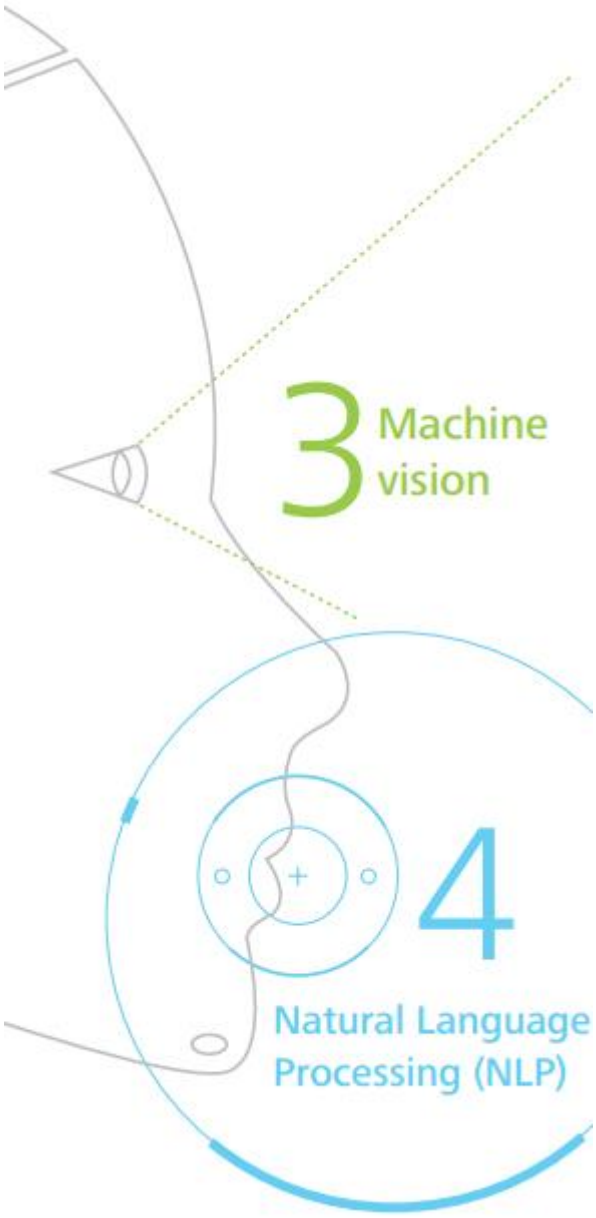


Fig 15: Deep Learning Stages 3&4 (Laurent, Chollet & Elsa 2014)

Fig 16: Process Automation 1 (Deloitte Development LLC. 2015)

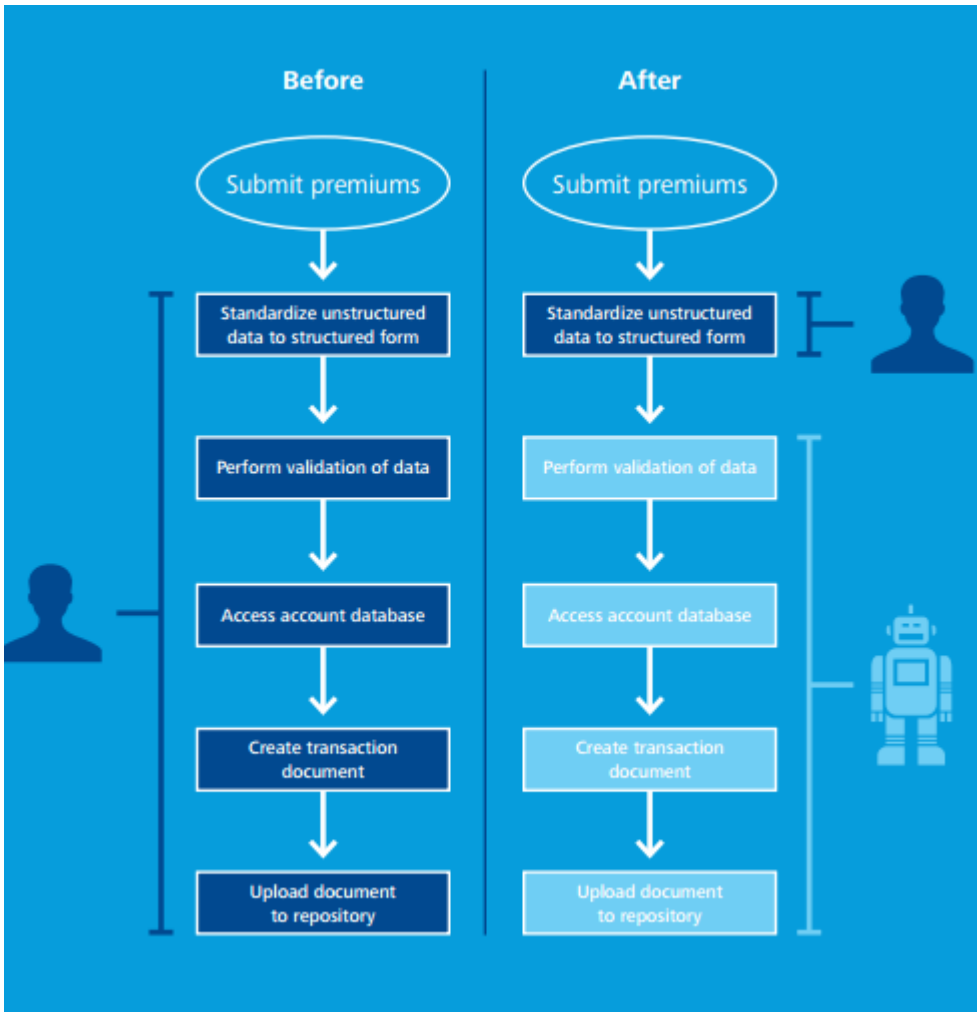


Fig 17: Process Automation 2 (Deloitte Development LLC. 2015)