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# *Tax technology*

## The next wave in business transformation

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# Foreword

Dear readers,

The unstoppable march of technology has dissected and connected the diverse elements of business in a variety of ways. Technology is rearranging and repositioning stakeholders' interests in new combinations every day. This presents both opportunities and challenges for tax functions and revenue administrations.

Tax functions have to take more responsibility to manage risk and create a competitive advantage for businesses, and tax administrators need to chase revenue in this fluid business environment and not shoo away investors.

It is seen that adoption of technology has been minimal in the tax functions of businesses, and technology is arriving late in the tax administration's core functions.

Discussions with people at the center stage of tax functions and the tax administration reveal that a pertinent reason for their late use of technology is the lack of technological orientation in most key functions of the tax role. Historically, their strengths have been concentrated in the area of effective legislations and their skills in interpretation of law. Consequently, they have been directing their efforts towards acquiring skills in these areas.

The author has had first-hand experience of handling a tax function in a business, as well as in consulting and working on various projects for the tax administration. In this role, he has benefited from his interactions with people at the helm of the tax function and tax administration over the last 30 years.

The need for this report was felt, since many publications in this area either describe technologies for tax or make a pitch for certain products and solutions. This publication aims to gently transcend the orientation of 'first class' tax professionals to tax technology. And its purpose will be served if readers are motivated to think of technology for tax as a way of life instead of a defined project.

This report presents a picture of the fast-evolving global tax landscape scenario, provides a simple score sheet for businesses to evaluate their existing tax functions and elaborates on the need for technology in the current business landscape. Section 4 onwards, it deals with the different aspects of actual use of technology. If you want to move quickly ahead, you could omit Sections 1 to 3, since the sections are organised in a manner that their content is complete in itself and not dependent on another section.

I hope this report will help you in your endeavour to implement the right technologies in your tax functions.
We will be happy to receive your input and feedback on it.

With kind regards,
Rahul Garg
Tax Technology Leader PwC

# Introduction

*With the global tax landscape changing dramatically, tax authorities and taxpayers are looking for more and more innovation in tax management, especially with e-Governance and digitisation gaining in importance. Therefore, there is a great need for organisations to proactively invest in their tax functions in this changing business and regulatory environment.*

## The changing tax landscape

Around the world, businesses continue to evolve rapidly, with momentous advancement in the field of technology and the vital role it plays in day-to-day business operations. There is an unprecedented potential for emerging technologies to reshape how work is done, how businesses grow, and how markets and industries evolve.

The global tax landscape is changing dramatically, with tax authorities and taxpayers looking for more and more innovation in tax management. They have realised that tax laws, which are broadly based on legislation implemented in the early 20th century, are not good enough to enable effective tax management in a scenario replete with ground-breaking business models in the 21st century. These new models run on high-end technology and facilitate transactions in virtual marketplaces. Consequently, on one hand, tax administrations are quickly adapting to new tax strategies to secure their due share of taxes, with the implementation of various reporting requirements under initiatives such as the Base Erosion and Profit Shifting (BEPS) Action Plans. On the other hand, there is a real need for taxpayers to gear up to keep pace with new standards on reporting and transparency.

With e-Governance and digitisation gaining in importance, tax authorities around the world are increasingly focusing on enforcing compliance and expanding the tax base. They are using advanced technologies to collect and analyse data on taxpayers, and intend to implement a transparent and compliance-oriented administration. This has necessitated change in the functioning of the tax function, for it to remain relevant and effective.

## Indian tax administration

India has come a long way in its endeavour to automate tax administration and data processing. The Tax Administration Reform Commission (TARC), under the chairmanship of Dr. Parthasarathi Shome, has recommended extensive use of information and communication technology in administration and governance of tax. The Commission emphasised that technology is a critical enabler for the country in its quest to move to modern tax administration. It highlighted areas where technology could play an important role in facilitating and easing tax authorities' interaction with taxpayers and improving compliance. It also elaborates on use of technology in forecasting revenue.

Among the Government's revenue departments, the Central Board of Direct Taxes (CBDT) and the Central Board of Excise and Customs (CBEC) have been early adopters of technology. Both these departments have formulated specific directorates to deal with computerisation-related initiatives and have benefitted significantly in terms of improved compliance, enhanced processing and increased taxpayer satisfaction. Moreover, recognising the value of data available in electronic form, the CBDT and the CBEC have initiated Data Warehousing and Business Intelligence projects to identify intelligible patterns and plug leakages.

The systems implemented so far facilitate e-Filing and e-Processing of tax returns by the Centralised Processing Centre (CPC) of the Income Tax Department. Gone are the days when the Tax Department had to organise camps on the return-filing due date to facilitate filing of returns, and taxpayers had to queue up to obtain stamped acknowledgements. From return filing on hard copies until only a few years ago, e-Filing of returns and automatic refunds have now become the order of day for most taxpayers.

The Tax Department's e-Filing website facilitates filing of returns, responses to non-compliance-related letters, filing of rectification requests, etc. However, although e-Filing of returns did away with the complexity of physical return-filing, returns were still being processed on a case-to-case basis by assessing officers across the country. The CPC has now eliminated the need for Income Tax staff and

officers to manually compute tax, interest and penalties. Moreover, with the implementation of the CPC, the tax refund-processing mechanism has been automated, and a large percentage of taxpayers are surprised to find tax refunds credited to their bank accounts before they expect. Furthermore, real-time updates sent by the Income Tax Department through emails and SMS have facilitated its interaction with taxpayers. The CPC is now providing a comprehensive and end-to-end service to taxpayers to process their returns in an automated mode, to compute the final refunds due to them or work out their tax liability.

In a total shift from the traditional assessment mode, e-Assessments are expected to become a reality soon. And not only has the return filing or assessment mechanism evolved significantly, but numerous other changes have also been made by the Tax authorities through the use of technology.

Receiving full credit of taxes withheld (TDS) was a dream for taxpayers till only a few years ago, but with the use of technology-based reconciliation, TDS records are now aligned and taxpayers are made aware of the credit they will receive even before they file their returns. Moreover, online access to Form 26AS has afforded significant relief to taxpayers, since it provides all the details of taxes paid as Advance Tax, Self-assessment Tax, taxes deducted or collected, and refunds made to them during the year. Online filing of documents for Customs clearance and e-Payment of taxes and duties have further eased the erstwhile onerous task of taxpayers.

Revenue also uses technology for risk profiling of taxpayers and transactions to conduct targeted assessments (in the case of Income Tax) and identify consignments (in the case of Customs) for customs audits. This has significantly enhanced the transparency of the procedure and eliminated manual intervention in the audit selection process, which is a great relief for taxpayers! All in all, the initiatives implemented by the tax administration (mentioned above) inspire taxpayers' confidence and encourage their voluntary compliance.

However, while technology continues to play an important role in transforming and improving the operations of the Indian Tax administration, the department has a long-term plan to harness it for the benefit of the revenue and taxpayers.

## Global tax scenario

The global tax landscape has been witnessing exponential changes, with frequent news items featuring changes in tax policies, increasing levels of enforcement and the growing potential reputational risk for organisations. Tax policies and enforcement strategies are widely discussed subjects and countries have come together to ramp up the effectiveness of their tax administrations.

From the perspective of their policies, governments want their countries to be viewed as attractive places in which to do business, as well as attract jobs and capital in an increasingly competitive global scenario. Consequently, they are treading a fine line, constantly assessing how they can secure tax revenues they see as rightly theirs, while at the same time being in direct competition with other countries and making sure they do not scare off global capital. Therefore, it is clear that today's rapidly evolving global tax

landscape requires the tax function to be mature with enhanced capacity. Tax functions can attain maturity and find space to create capacity by relying on technology and automation, with a keen focus on efficiency, tax-risk management and data-based decision-making.

e-Filing of tax returns has become the norm across tax jurisdictions around the world, with Tax departments gearing up to automate and reconcile data submitted electronically by taxpayers in various jurisdictions for the same tax periods. This facilitates effective data-mining and electronic analysis to detect risk. And with increased collection of data through the use of technology and software, taxpayers can on one hand achieve a high degree of assurance on filings, and on the other, may soon see an increased number of focused information-based audits conducted by the administration.

Sharing of tax-related information among countries has become the norm, and a large number of Tax Information Exchange Agreements have been signed by India in the last couple of years. Several countries are now looking forward to implementing the BEPS Action Plans, which have been designed on an assumption of transparency on taxpayers across tax administrations in various countries, and some are planning to make tax data-sharing an automated process by 2017-18.

Thus, we see that enhanced transparency and disclosure of tax-relevant information are now the new standard for business. The demand for increased transparency is reflected in the agendas and action plans of the Organisation for Economic Co-operation and Development (OECD), the G20, the European Union and the United Nations.

The immediate and sweeping initiative in the domain of tax functions is the OECD's Country-by-Country Reporting (CbCR) recommendations and framework. CbCR is expected to make a significant impact on the tax function and how it should engage with the wider business world in order to be ready for compliance-related requirements, meet recurring annual tax obligations and respond to information-powered tax administrations in several countries. Changes in the Tax function are being shaped by these and other initiatives under the OECD's BEPS Action Plan, unilateral government actions and new trends in transparency through social media, activism by non-profit organisations' initiatives, etc.

According to reports, technology-related spending forms a significant part of the overall budgets of many revenue bodies around the world, with some of these ranging from 10% to 15% of total budgets. There are indications that tax administrations with a high spend on technology witness a correspondingly high rate of compliance, e.g., in e-Filing and e-Payment.

There is no doubt that use of technology has significant potential to improve revenue collection by automation of processes and

provision of improved services to taxpayers, but it has also increased compliance-related requirements for them. And the growing complexity of regulations and business as well as the evolution of tax technology have whetted tax executives' ever-increasing expectations. Therefore, it is imperative for them to ensure that they protect their businesses by monitoring and responding to changes in policies, legislation and tax enforcement. At the same time, they not only need to make sure of the highest levels of compliance in their organisations, but also upgrade their tax functions to be in sync with these changes. Moreover, with rising expectations, tax functions now need to look beyond business as usual and significantly transform their operations to deliver enhanced value to their stakeholders.

## Changing tax function

The changing business and regulatory environment requires organisations to proactively invest in their tax functions. Generally, a tax function seeks to achieve the following:

- Optimise and contribute value to an organisation's business drivers and outcomes
- Understand and manage risks associated with its tax functions and shadow tax functions (where tax activities are undertaken by non-tax team resources)
- Ensure its compliance with tax laws and related regulations

A focused and concerted effort to improve processes in tax functions can reduce costs and time in the operations of a tax function (international, federal, state and consulting tax services), improve quality and reduce risk. Therefore, in order to achieve their desired objectives, organisations need to upgrade their tax functions by putting in place modern technology that has significantly helped them achieve similar objectives in their other functions. Technology has now become essential for the smooth and efficient functioning of companies' operations. And with effective data flow continuing to be a dire challenge tax functions face in today's fast-evolving world, timely availability of high-quality data and automation of input-to-output cycles are areas that need urgent attention. The right mix of skill and experience, fortified with advanced technological tools, is the need of the hour.

If business decisions need to factor tax cost-related estimates based on annual historical data in today's highly competitive world, it is a losing proposition. Organisations' ability to factor in precise tax cost estimates in their business decision making is clearly a competitive advantage. Effective communication of the tax function to C-suit executives is another important aspect of the process, considering the high reputational risk organisations may face on account of tax litigation or social media- initiated challenges. Now, more often than before, tax finds an important place in the agenda of board meetings. Today, leadership teams are keen to participate in decision-making to minimise tax risks and to invest in making their tax functions more efficient and robust. Therefore, appropriate dashboards, based on contemporary data and sound dynamic algorithms, need to be developed in organisations to enable meaningful communication from their tax functions to their boards.

It is clear that the traditional role of a tax function in managing local compliance-related matters, submitting data in a tax audit, etc., has changed substantially in the evolving business scenario and significant changes made in administrative processes. Gone are the days where an annual guidance from tax teams to business was considered sufficient for efficient decision-making. To optimise decisions, up-to-date forecasting and precision are needed. Consequently, organisations that do not adapt quickly to this changing environment stand the risk of facing increasing challenges and losing ground.

In this environment, organisations need to be accurate and compliant, and focus on streamlining their processes to enable their tax functions to play an enhanced role in their business-related decision-making and strategies in line with tax laws and protocols through appropriate direct and indirect advocacy. And most importantly, the need to integrate their business and tax functions to face challenges posed by the new order has increased significantly.

# Evaluation of existing tax functions and the need for use of technology

*As we look at use of technology to enhance the tax function, we need to reflect on 'where' we are and 'what' got us here. This section elaborates on how tax executives would do well to look at business beyond the usual and transform their operations by using well-integrated tax technology to put in place efficient and up-to-date functions in their organisations.*

Organisations need to evaluate their existing tax functions to ascertain whether these are adequately equipped to deal with the increasing complexity of requirements, and are able to comply with the mandates of tax administrations and contribute to business decision-making effectively. The following are the key challenges facing any tax function today:

a. Inconsistency in information used in various tax filings for diverse tax laws in multiple jurisdictions

b. Lack of effective control over compliance that needs to be undertaken and confidence that the required data will be available to complete compliance and support positions taken

c. Optimisation and achievement of efficiency in the tax function to provide quick but accurate tax input with high assurance for decision-making in business

d. Ability to influence shaping of new laws, protocols and public opinion across multiple jurisdictions and diverse regulators, and other stakeholders including media and NGOs

As we look at use of technology to enhance the tax function, we need to reflect on 'where' we are and 'what' got us here. Today, most organisations' tax functions use a hodgepodge of technology in various systems to cater to their varied needs. Technology is implemented in silos, often due to legacy systems or acquisitions, and tax functions frequently access data from finance ERP modules, Excel-based MIS reports, parallel running payroll administration systems and Excel files used to record inventory or assets, as well as other dispersed data clusters maintained by employees running tax functions directly or as shadow task owners.

Implementation of an input-to-output cycle typically entails several distinct steps and includes estimates, budgeting, recording, compliance, cash tax management, controversy management, tax planning, etc., as well as day-to-day administration of tax functions. Furthermore, in most organisations, the owners of each function are different and operate in silos. They usually use diverse tools that do not support their functions in their entirety. This results in a manual interface for sharing data on a need basis. Synergies and efficiency across functional areas are lost in the process of manual collation and sharing of data, and the risk of inconsistent data being used in different filings increases.

In the present environment, most tax departments rely on information provided by an organisation's finance and collateral functions. The majority of tax managers feel that the greatest impediment in their path is the difficulty they face in retrieving high-quality, critical and tax-relevant up-to date data in the desired format for audit, compliance-related purposes when they need it, and to provide relevant input for informed business-related decision-making. This is a widespread and frequently cited challenge faced by organisations across industries and geography. Therefore, most tax managers end up expending an inordinate amount of time and effort in collecting, validating and reviewing unstructured and partly structured data. Moreover, the use of multiple or inconsistent data sources frequently results in lack of control over different systems and increases the overall risk.

Since finance operations and tax functions are interdependent, integration of their day-to-day activities is of utmost importance. Consequently, there is an urgent need for organisations to implement end-to-end technology-based solutions that are aligned to their overall technology strategies to automate their tax functions, instead of using technology in silos.

Tax authorities across OECD member countries are increasingly expecting organisations to undertake real-time compliance and data-oriented audits. The challenges thrown up by these requirements are combined with the continuing demand for increased transparency from a wide range of stakeholders. These issues need to be addressed by organisations while managing their tax risks and in order to avail of opportunities in a cost-effective manner. This has led to senior management members increasingly focusing on how tax is being managed and aligned with the overall goals of their organisations.

Today, global tax directors seek to be knowledgeable and confident about tax processes and their ability to operate in a world of advanced tax administrations. And while they want to mitigate their financial and reputational risks to the greatest extent possible, they also seek to minimise the effective tax rate (ETR) at the group level. This can only be achieved if their tax functions optimise their efficiency and make available time to contribute effectively to tax-related business decisions.

In our view, new transparency- and reporting-related requirements are putting an additional burden on tax functions and limiting their ability to contribute effectively to their organisations' strategic drivers. With such expectations, tax executives and functions need to look at business beyond the usual and transform their operations to add enhanced value in key areas. An efficient, up-to-date and well-integrated tax function can effectively enhance the commercial bid or vendor negotiation process by clearly identifying tax efficiencies or inefficiencies. The key here is improved and increased use of technology in organisations' day-to-day operations to substantially minimise the effort required in obtaining insightful and meaningful data on a continuous basis to support their business-related decision-making.

It is amply clear that technology is of utmost importance for today's tax functions as well as for tax executives who:

- need to do more than ever before with limited resources.
- efficiently manage risk in their organisations.
- require more and enhanced data, frequently and on a real-time basis.
- are required to drive substantial value from tax data.
- need to maximise returns on investment to transform their functions.
- have to comply with exponentially increasing reporting requirements.
- are required to respond to queries on their co-operative compliance models and risk-based approach from the tax authorities.
- need to meet requirements and/or expectations resulting from the developing OECD framework and new regulations.

With taxation being an essential aspect of doing business, it is important for organisations to understand the impact of amendments in taxes and regulations. Based on real-time information and reliable forecasting, it is possible for them to strategically view these changes, avail of opportunities and steer away from risk. In addition, tax functions need to keep pace with developments across industries as new businesses emerge that can pose a risk to their competitiveness due to different tax assumptions for new business models that their competitors may use.

As most tax functions are strapped for time, the prospect of making changes is often a low priority for them.

# The solution — use of technology in the tax function

*Until a few years ago, there was a dearth of reliable technology-based tools that could help to automate tax functions, and the ones that were available were too expensive for boards to include in their tax budgets. The exponential evolvement of the regulatory ecosystem in recent times has now made many organisations keen to transform their tax functions by using technology. This section includes a sample score sheet with relevant parameters to help you ascertain whether technology can effectively enhance your tax function.*

Over the last few decades, technological advancements have shaken the world and brought significant changes in the way businesses are conducted and managed in the modern world. Looking at any business division, be it manufacturing, logistics, HR or finance, IT is the backbone that supports its efficient and seamless functioning. It may be difficult to gauge which business division has been the greatest beneficiary of technological advancement, but it is amply evident that the finance function, which is the closest to the tax function, has benefited immensely.

Use of technology in the finance function has had a significant impact on the entire spectrum of business processes. The automated ERP systems used in today's finance functions have helped businesses enhance their efficiency and derive substantial value from these processes. This has resulted in overall savings for organisations. In today's world, use of modern world ERP systems has become more of a business necessity than a luxury because it empowers a business with a significant competitive edge and enables it to emerge as a winner, compared to its less tech-savvy competitors. Moreover, with rapidly growing businesses, both in size and geography, it is well-nigh impossible to compress voluminous data in statutory filings or internal MIS reports without the use of appropriate technological enablers. The comfort and control of financial data this bestows on the CFO of a big conglomerate is unparalleled in the ERP era, and businesses that have implemented these systems find it impossible to imagine how they would have functioned efficiently without the support of technological advancements and their timely adoption.

This is the scenario in which tax functions may need to operate in the near future in most organisations. Consequently, it makes good sense for businesses to gear up and begin investing in automation in their tax functions now rather than postpone this decision. Technological advancement has worked wonders in other business divisions, therefore, it is beyond doubt that technology, once it is employed, will significantly enhance the efficiency of tax functions and add synergies to the business as a whole.

## Why has technology not been widely adopted by tax functions till now?

This is an interesting question. Why is it that while businesses run on technology today, their tax functions have not kept pace with technological advancements?

Today, most tax managers, while they feel the need for better managed tax functions, are not confident about using technology to meet their objectives. This is because they do not have adequate positive feedback on innovations in the area of tax. It could be due to the fact that until a few years ago, there was a dearth of reliable technology-based tools that could help automate tax functions, and the ones that were available were too expensive for boards to allocate resources in their budgets. This lack of availability of the right skillsets and domain expertise in niche areas of technology in tax acted as a dampener until recently.

Moreover, the range of and diversity in various tax laws that could apply to organisations made standardisation difficult. Even if a business invested in buying a tech-savvy tax tool, its adaptability in keeping pace with amendments and other regulatory changes has been an area of concern. Lack of assurance on the ability of technology-based solutions to deliver the desired results played a major role in organisations being uncertain about the benefits of keeping pace with technological advancement in the tax arena. Lastly, the value and risk perception of tax aspects was considered only marginally important for serious investment and significant effort to be expended on tax functions.

## And why should it work now?

The scenario has changed and technology has evolved over the years. Today, use of high-end robotics and Big Data analytics is not restricted to research projects and is easily available for common applications. Businesses have realised that implementation of state-of-the-art technology in their tax functions can greatly simplify the process of upgrading these and significantly add to their efficiency. Now more and more technology experts are continuously using high-end technological advancements to introduce solutions that can deliver considerable value to organisations in the area of tax function.

In the current business scenario, the new generation of tax managers are forward-looking and ready to invest their time and energy in deriving the maximum value from use of technology in tax functions. Gone are the days when the tax function was considered just an ancillary to the finance department; it has now become an important point in the agenda at board meetings. Today, boards are aware of the consequences of weakness in their tax functions and are eager to invest in tailor- made technology-based solutions. This also helps significantly in management of financial and reputational risk, which is gaining importance in the social media world.

It is pertinent to note that the regulatory ecosystem has also evolved exponentially over the last few years and become a platform for automatic filing and exchange of information between various regulators, as well as the governments of various countries, through standardisation. Transparency and consistency have become a clarion call.

These developments have made organisations more receptive to transform their tax functions.

## Do you need technology?

Whether you need technological intervention to enhance and make your tax function more effective can be easily assessed by quick answers to the questions in Table I.

The following is a sample score sheet to help you score your company and ascertain whether technology can enhance your tax function.

We present a 5-point scale on the table below to help you assess. You could select a low score of 1 to denote that you strongly disagree that your assurance level is high. Or you could opt for a score of 5 to indicate that you strongly agree that in the existing situation in your organisation, your assurance level is high.

Tips for better understanding of the checkpoints and guidelines on scoring are given below:

a. **Tax strategy and its implementation:** The first statement relates to gaps in a tax strategy and its implementation across offices and businesses, where results are sub-optimal. The general experience is that substantial time and effort is expended by organisations to decide on appropriate tax strategies and plan specific scenarios. But when it comes to implementation, the strategies fail for a variety of reasons.

i. Usually, it is seen that the documentation needed to support assertions is either inadequate or not retrievable when needed.

ii. Another reason why organisations fail to execute their tax strategies and plans is that their valuation of pricing or costs are frequently not driven by informed business reasoning and are therefore unacceptable to Revenue.

iii. Organisations' tax planning and strategies may become fruitless because required filings to seek approvals, rulings or give undertakings are missed.

b. **Giving a competitive edge to business drivers:** Today, an adequate data-based understanding of the tax component in business decision-making can make a huge difference in negotiations with vendors, contracting customers, multi-geography projects, choices regarding financing options and in optimising tax costs. A mature tax function has a key role in supporting a business, and maintaining adequate capacity to identify opportunities and avail of these.

c. **Risk of inconsistent positions:** Another area where a tax function is caught unawares is where its filings (to support a particular proposition) are found to be inconsistent with its collateral filing to another regulator or assertions it has made in its internal reporting on the organisation's corporate MIS system, reward systems or any other such function, when compared with assertions required to support its tax positions. It is all about the

Table I: Score sheet to gauge need for technology

| S. no. | Parameters | Score | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| A | I am assured that the tax strategy in my organisation has been appropriately implemented across taxes, geographies and years, and will produce results as envisaged. | | | | | |
| B | My tax function giving my organisation a competitive edge in the revenue and cost drivers. | | | | | |
| C | I am comfortable that inconsistent positions are not being taken in my tax function's filings, litigations and representations across taxes, geographies and years. | | | | | |
| D | I have timely and accessible evidence of data and an audit trail for each attribute or value asserted in various reporting and proceedings by my organisation's tax function. | | | | | |
| E | Deviations from norms or trends are highlighted well in time to enable proactive action. | | | | | |
| F | There is an updated documented institutional knowledge repository in my organisation that can be made available to relevant stakeholders in time. | | | | | |
| G | I am satisfied that the cost of my tax function cannot be further optimised. | | | | | |
| Total | | | | | | |

consistency of its positions, both on facts and in law, in different countries in relation to various taxes over a given period.

It is seen that a centralised tax controller usually tries to ensure that a situation does not arise where inconsistent positions are taken or reporting is done by periodic collection and sharing of required information on important matters. Collection of information and continuous monitoring is an arduous task when it is carried out manually. And it has been seen that despite the substantial effort required, only a low degree of assurance is achieved.

Here we would like you to pause and think. Consider a small filing for a single tax by your office, which may seem innocuous and therefore something you do not consider important at the time. How would you make sure that later such a filing does not hamper the position you want to take on a significant matter. Often, in reporting for direct and indirect taxes, there is the stress of opposing forces either driving values or classifications in one direction or the other, as it suits taxpayers or regulators. In such circumstances, it is seen that while dealing with a particular matter, an organisation is intensely involved at a point of time and its main focus is on somehow establishing a position that supports the matter. Being sometimes over-enthusiastic in establishing such a position, it can become vulnerable to adopting a position that may be inconsistent with another significant filing it has made.

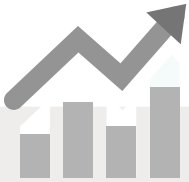
How can an organisation prevent such problems from arising or mitigate them is a challenge tax functions encounter every day. We urge you to cogitate on this and then score your level of satisfaction. A score of 1 would suggest that whereas you have an understanding of the situation and believe there are no problems faced in your organisation, you do not have the assurance, an audit trail or adequate evidence to satisfy yourself that consistent positions are being consistently taken in your tax function. A score of 5 would indicate that you have implemented a system, using which you recognise the risk of taking an inconsistent position, but have safeguards in place (with pre-work or a pre-review guidance) possibility of the position taken being inconsistent reduced on identified key aspects.

**d. Reliable data for audit trail:** Another challenge typically encountered in a tax function is that evidence of various attributes and values that are reported or

asserted in different filings or proceedings to the regulators are not readily available. The need for the right data and evidence required for tax purposes has two peculiar characteristics: one, it is often not standardised like other data and information needed for the MIS or finance functions, and two, there is significant variety and diversity in such information and data. Since tax reporting often requires data not only from finance systems, but also from multiple non-finance systems, it is often dependent on the priority others assign to the needs of the tax function. And many times, other functions are not even geared up to the required standard. The ability to access precise information required can lead to a high degree of assurance and be a great enabler in making a tax function effective.

If you have a robust mechanism in place to gain access to reliable data consistently on various taxes during different periods in various countries, and you are able to access this every time you need it and in the manner you need it, you score a high 5. On the other hand, if this function is being just somehow managed in your organisation, and the stress and effort it causes results in distraction, then your score is a low 1.

e. **Identification of deviations and trends:** Let us now look at how you stand in relation to the transparency required in tax matters, especially in view of the current trend with revenue authorities working jointly on audits and other cooperative programmes. Data being collected in various geographies is being used and made available to diverse regulators, and year after year, they use the updated data to assess the risk profiles of transactions or clusters of transactions. It



is therefore very important to understand the importance of an appropriate risk assessment before you report or file.

Tax functions therefore need to use the right kind of analytics to understand deviations and current trends in relation to the various attributes and values to be asserted in reportings. At this juncture, we would like you to think about whether you are enabled to identify and notice deviations from the norm and identify trends to your satisfaction, well in time to take remedial action. The key here is to be able to identify such indicators as early signs to which additional attention or intervention may be needed. In mature systems, one finds dynamic trends and indicators are reported across businesses, unit periods, tax groups, relevant stakeholders, etc. And advance analytics is used to highlight underlying deficiencies, correalations and patterns. You score a high 5 if you have adequate algorithms in place in your system, which lead to the creation of a dashboard on exceptions and indicate the need for corrective action to the employees responsible for undertaking these tasks and filings, and provide relevant insights to them to forecast and obtain a long-term view. However, if you think there is a need to enhance your system or to consider fresh algorithms to identify trend-related deviations, you score relatively low.

f. **Knowledge as an enabler:** As we know, the tax function largely depends on the institutional and intellectual knowledge of the workforce. Easy access to recorded documents, regulations, past reports and precedents is the bare minimum expectation. Today, sources of relevant information have multiplied. Non-government organisations, abrupt disclosures (Wikileaks, etc.), multi-lateral bodies making their analyses public and other interested groups are seeking to influence the thinking of the Government and the public through social media. Harnessing this vast input to obtain insights is important to mitigate risk and make the best use of available opportunities.

At this juncture, we advise you to delve into your organisation's documented institutional knowledge repository, which you can make available to relevant stakeholders without there being a need for them to consult people over and over again. If you think this knowledge repository has regular updated internal and external sourced information that is suitably classified, made available proactively as guidance to complete tasks, filings and reporting, score yourself a high 5. But if you think there is a need to ramp up the scope of this knowledge and make it more easily available, score yourself relatively low.

g. **Cost optimisation:** The cost of resourcing an efficient tax function and the benefits derived from this could be a matter of concern for you, since costs keeps rising and optimum utilisation and benefits are at times either not measurable or not commensurate with the required effort. Therefore, whether you can further optimise the 'cost benefit' equation in your tax function is the core question. Here, we would like you to look at costs from the parameters of the expense of running and managing a tax department, as well as your financial losses due to inefficiency (resulting in penalties, fines, interest on delayed payments, non-payment or short payment of taxes), or a lost opportunity to optimise costs or be competitive.

If you calculate the total cost incurred on your tax department and sit back and think that there is an opportunity to optimise the cost-benefit ratio, then score yourself a low 1 or 2. However, if your current outlay on your tax department is optimal, there is no possibility of optimising the cost-benefit equation further and your parameters are comparable with the best in class, score yourself a high 5.

Working on this table will enable you to arrive at an aggregate score, which can range from 7 to 35. Remember that an aggregate score of less than 15 suggests that there is a significant opportunity and an urgent need for you to scrutinise your company's tax function, and seriously consider enhancing it by using the right technology. On the other hand, a score of a perfect 30 would indicate that your tax function is mature, and therefore, adoption of technology would relieve the stress and strain on your people. You could then shift processes to machines, and enhance your tax function substantially by giving people adequate time to innovate and participate in influencing key trends and new developments to shape a tax system that is less disruptive and more suited for your organisation.

# Assessment of technological aspect of your tax function

*It is important to identify the right strategy to optimise your tax function. This section elaborates on the technological aspects you need to consider in your existing function. It will entail an assessment of the current level of automation, the computing ability of the technology currently used in your tax function and availability of the required skills in your organisation. This will help you implement the right strategy.*

After having understood the need to adopt technology in your tax function, the next step is to gain access to the strategy required to achieve this. Before identifying an appropriate strategy, it is important for you to take a close look at your tax function from the point of view of technology. This will entail an overview of your tax operations in their entirety, irrespective of the kind of taxes or the region where these are administered, in order to evaluate and identify the right strategy to enhance and optimise your tax function. There are various off-the-shelf models available to assess the maturity of your technology. In the following paragraphs, we present some non-technical steps to help you quickly gauge your readiness. The following are the technological aspects you need to consider in your tax function:

i. The first step would be to gauge your organisation's ability to identify recurring tasks and activities and its efficiency in clustering through use of technology.

ii. The second would be to understand workflows to gauge the extent to which technology can enable identified and comprehensively mapped external compliance and internal tasks.

iii. The third would be an assessment of the current level of **automation** in your organisation to obtain relevant input on numerical values and narratives needed for each data field in various compliance reports, filings and for business-related decision-making.

iv. The fourth would be an an assessment of the computing ability of the technology used in your tax function to provide relevant input, duly updated for any changes in dependent values and analysed by using a robust allgorithm. Does it embed 'what if' scenarios and interactive analysis?

v. Lastly, you will need to conduct an evaluation of the availability of the required skillsets in your organisation.

What is essential here is to take a hard look at tasks qua activities, skills and technology needed to perform such tasks and activities, irrespective of taxes, regions or periods. This will help you size the technology and make the right choice.

We will cover each one of the aspects given above in detail in the following paragraphs to help you understand the scoring for a technological view of your existing tax function for the purpose of this assessment.

### a. Recurring tasks

Is there is a mechanism in your tax function that identifies repeated activities or steps in seemingly dissimilar functions? There may be a need to dissect tasks to understand which activity can be clustered, aggregated and technologically enabled. Here you would need to pinpoint who is responsible for such mechanisms in your tax function or whether these are undertaken by an enabler. It is commonly found that the people responsible for the requisite tasks in a typical tax function are not the best ones to perform these efficiently.

Once such seemingly different tasks are identified, a specialist who understands the process should be able to detect which part of an activity or step needs be aggregated with other similar ones. If your tax function does not have such in-house capabilities, this skill will need to be made available. Once repetitive tasks are identified and clustered, the second part of the assessment is to verify whether there is an appropriate technology already available in your tax function, which can be employed. If your answer is "yes' and such tasks can be quickly moved to these technology platforms or applications. The third aspect is to ensure that the lead time taken in clustering repeated tasks and enabling these through technology is defined in weeks and not months! If your organisation has a robust SLA and benchmark in place, which it uses to migrate such tasks to its IT-enabled platform quickly, it scores a high 5. If it does not have the right mechanism to identify repeated tasks by slicing and dicing these, it scores a low 1.

### b. Workflow mapping

The next step would entail understanding the technology employed in your tax function to ascertain how it uses workflow solutions. Here, the first requirement, which would need your attention, is whether all the tasks carried out in the function are listed in the workflow and people are mapped with specific tasks (the details of which are comprehensive and available in documented form). What is important is that the document does not just list tasks, but it also elaborates on the process flow, and clearly indicates dependencies and critical end-to-end checks and balances that need to be carried out to complete the tasks. And for each part of the workflow that is assigned to a particular person, there should be an assigned reviewer or approver. In addition, there should be adequate guidance to ensure that a task is performed as it should be. If the right guidance is available at the time a task needs to be performed, it is considered that the company's IT is geared to not only monitor but also enable the task.

It is also important to check that the workflow helps to ensure that the audit trail and documents as well as standard usable document templates are retrievable at short notice while the task is being executed, and can be navigated through the main task or sub-task. This is an important aspect for an organisation to score high in an assessment of its existing tax function. And lastly, it is necessary to check whether the workflow allows quantification of the risks of non-compliance or delayed compliance. Typical workflow solutions do not have computing abilities, but some of these can be embeded in the workflow through suitable implementation. In an evolved workflow solution, it is possible to integrate computing abilities to assess quantification of non-compliance or delayed

compliance. At this stage, we would urge you to look at the workflow maturity of your tax function, and score it high or low, depending on your assessment of the existing scenario.

### c. Automation

The next step in an assessment is to determine the degree of automation employed in your tax function. This can be assessed by first understanding whether there is documented guidance available, which captures the data fields, and the attributes of the values and narratives that are required for a tax function. These fields may need to be filled up in a compliance form, a management report, a tax reporting or account reporting form, and so on. If there is an exhaustive list of all these fields and descriptions defining them by precise rules, for narrative as well as value, this is a good point for an overview of what is needed, and therefore, see what is overlapping, what is sub-set and what is super-set. This will give you an idea of the readiness of your tax function to achive automation. The other aspect is identification of the data sources from which these fields will need to be populated, keeping in mind that this data may be a narrative or a value. Here, you will need to ascertain whether there is an existing system in your tax function that has identified linkages with data sources as input for fields required to be populated for reporting, etc. To illustrate this, if there is reporting required on, for instance, 'rent expense', in a return to be filed in Country A, this field will need to be identified first. Then a description of the definition, indicating the period to which it pertains, what the rent implies according to the laws specified, whether is means actual payment of rent or rent as assessed or provided in the books of accounts, or if it refers to rent paid in cash, would need to be documented. The second step links the source of information to this field. Is the source of this field the party account, the rent account, the profit and loss account, the rent agreement or any other reference item? Therefore, if there is a document that links each of the fields required with data sources in various pockets in your organisation, this is an indicator that your tax function is adequately mature to aspire to and achieve automation.

Frequently, data available in an organisation cannot be directly used for reporting, etc., in an identified field and only a derivative of it is usable. There is therefore a need for a mechanism and system within the function, which can initiate a request to embed algorithms to obtain precise and derivative data for the particular field in an automated manner, for reporting or decision-making.

If your organisation has a list with the total number of data fields required, with narratives and value, it should also have a map of the link to data sources, both in and out of the tax function. In addition, it should have a derivative algorithm, written to source the needed derivative data. The last aspect of automation is that the system is fully integrated so that data in the different fields accumulates on a continual basis. If this is the case, your organisation scores a high 5 on the maturity of its readiness for automation.

### d. Computing ability

Finally, use of technology in your tax organisation and the computing ability of the technology will need to be ascertained to gauge whether it is being put to meaningful use in your tax function. An important point to verify here is whether the function has in place an IT-enabled system that can be used to continually update time-dependent reports, data or filings. Therefore, if there is a report that needs to be completed and disseminated at the end of every month, the updated value should be automatically calculated by the IT-enabled system at the end of the month. Similarly, if a report needs to be updated at the end of every quarter, it should be possible to calculate all the values during this period by making use of the system to obtain updated data rather than use static information.

The other need is that if anywhere in the system, dependent or input data for a derivative changes, the final information should get automatically updated and an audit trail created. This is an important aspect you need to consider while evaluating the computing maturity of your organisation. Another imperative is that in relation to decision-making, planning and strategy, you need to determine whether the system is flexible enough to write an algorithm quickly to obtain reports of either deviations, trends or patterns, or the interplay of the various matrices in data fields. It may be that your tax function has an in- house capability or is enabled by available capability using which such algorithms can be promptly put into place to generate alternative reports for simulation. This indicates that your organisation has achieved a high degree of maturity. And, lastly, in relation to decision-making, it is important that computing ability is used in your organisation to enable 'what if' scenarios in multiple permutations and combinations of data without the need to interact with the IT team over and over

again. If the algorithm, etc., required to play a 'what if' scenario has been reasonably thought through and your tax fuction has the ability to run it, this also indicates your organisation's high degree of maturity in using computing capabilities, and you score a high '4'. We have reserved the top '5' score for organisations that use artificial intelligence and machine learning to supplement their judgement and generate documentation in an automated manner by using human-like thinking in connecting values,narratives, etc.

### e. Required skillsets

Modern technology and IT skills have not evolved adequately in tax functions compared to other department in organisations. Tax functions need to work seamlessly with IT departments. This should rank high on their priority list. Otherwise, the preferred option would be to look for core IT skills or IT people in the tax function, so that continuous improvement and adoption of IT becomes a way of life. Typically, in an organisation with a decentralised IT set up, there is no need to create a shadow IT function. What is important is that IT professionals work together with domain specialists to gain an understanding of the tax function and its drivers, to be able to identify and adopt the best technology, and bring in proactive ideas and next generation capabilities.

This ends the discussion on assessment of the technological aspect in tax functions. A high score would indicate your preparedness to use advanced technology and lead to next level identification of the right strategy to implement in your tax function.

**Table II: Score sheet for existing technology**

| S. no | Parameters | Score | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| A | Recurring tasks | | | | | |
| B | Workflow mapping | | | | | |
| C | Automation | | | | | |
| D | Computing ability | | | | | |
| E | Required skillsets | | | | | |
| Total | | | | | | |

**Diagram 1: Build up of value in tax functions**

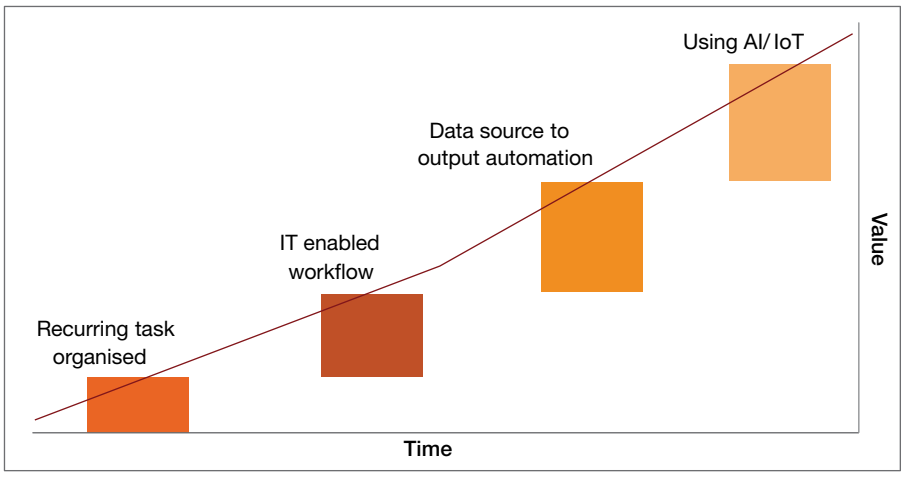



**Diagram 1 provides an overview of the value that various elements of tax technology contribute to a business.**

## Strategy for use of technology in tax functions

The world has moved from the spreadsheet to multiple technologies that can help tax functions just as they help other business functions across the finance and non-finance parts of organisations. If you were to look at current technologies that are useful for tax functions, they can be broadly classified as those that enable automation, some that enable the workflow and others that enable the required computing ability. This is why we consider that the technological view of the tax function needs to be understood by it.

Technology aligned with the right strategy for its adoption in a tax function will lead to implementation of a focused plan.

A tax technology strategy has three key elements. First, gaining an understanding that technology, although it automates or helps in automation, does not come cheap.

And therefore, a strategic decision rests on consideration of the cost benefit aspect of adoption of a particular technology. The second element is that technology for a tax function cannot be significantly or materially different from an organisation's overall technology strategy and its adoption in the company, and particularly in its finance function. Note that while on one hand acquisition of the appropriate technology provides an organisation a platform on which it can propel its technology for tax, on the other hand, this can sometimes be seen as a limitation in adoption of technology in its tax function. The third aspect is that when using technology in a tax function in which technical skills for using the technology are relatively inadequate, compared to other parts of the organisation, it is important that this initiative is implemented in the high-impact area first so that the benefits are commensurate with the time and effort expended and cost incurred.

Therefore, what is needed is a very high-level strategy statement for using the technology for tax to guide and drive the agenda. Simply put, an effective strategy statement for adoption of a technology for tax could be 'leverage the latest technology to make a tax function effective and efficient and significantly contributing to decision-making resulting in tangible competitive advantage'. Therefore, an enterprise should view the right use of technology in its tax function as a business advantage enabler. It, however, needs to be cost-effective,

efficient and also strengthen the decision-making process. Various technologies for tax can be accessed, but the important thing is that these should be obtained at a reasonable cost, to improve efficiency and enhance the ability of tax functions to effectively support organisation and give them a business advantage.

It is comparatively easier to understand the benefits of adoption of technology for other business purposes than from the perspective of a tax function. The advantage of adoption of technology for tax in various situations and different modes may be difficult to envisage initially. To illustrate, where the tax function supports a business in finalising a commercial bid, its ability to identify the tax cost can be very different if there is clear visibility on the tax credits in the organisation's entire supply chain. Similarly, when vendor-related negotiation takes place, the ability of a business to secure a good deal is high if its tax function is able to provide a precise break-up of tax embedded in the vendor's quote. Technology can enhance an organisation's ability to forecast its future cash flows for tax and understand its tax reportable charge to its profit and loss account more precisely. New technologies provide simplified platforms and use gaming theories to present alternative scenarios and create trade-off matrices, which a tax function can use to enhance its contribution to the organisation. Here, it is important to understand that a tax technology-acquisition and implementation agenda should move towards gaining a business advantage as its ultimate goal and not stop at achieving assurance on compliance-related requirements, reporting and workflow. Apart from instilling transparency, completeness and control in tax processes, tax echnology can:

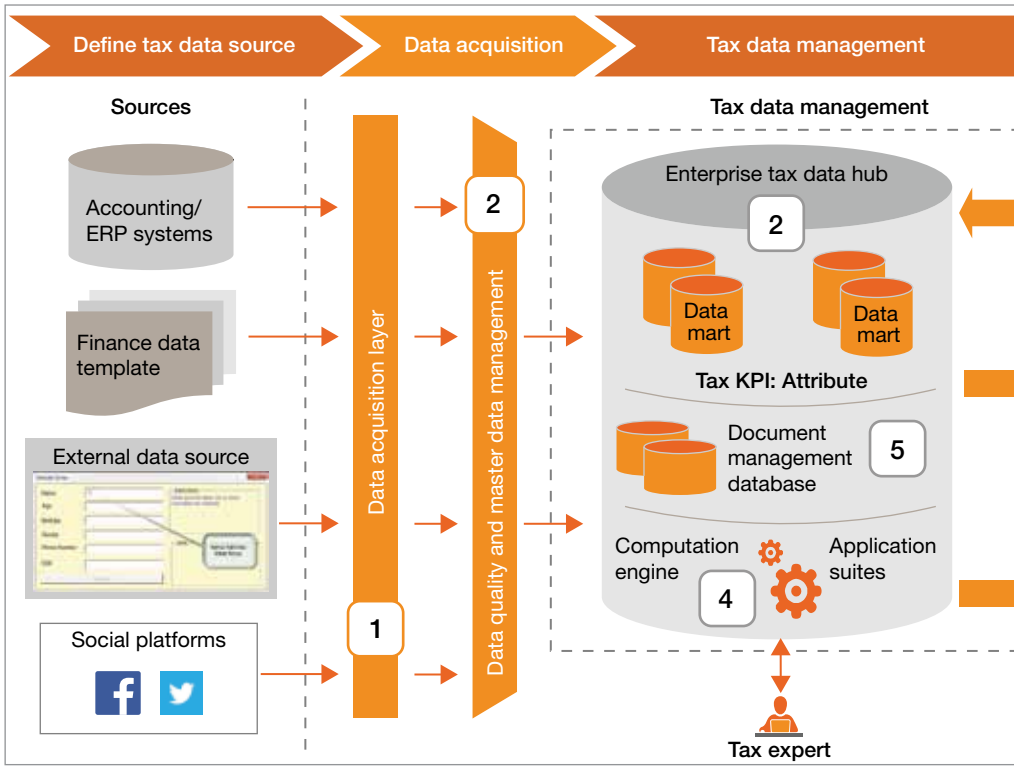
- create capacity among an organisation's employees.
- eliminate single user-single computer dependence.
- augment analyses to ease understanding.
- improve an organisation's forecasting and scenario-planning capability.
- improve the quality of its deliverables (tax reporting).
- help it retain and enrich its institutional knowledge.
- ease its response to audits.
- strengthen its internal controls and avoid material weaknesses.
- reinforce its data security.

A sound tax technology strategy can be implemented through a robust tax technology ecosystem. The following paragraphs describe a core tax technology ecosystem.

# Tax technology ecosystem

*The right strategy can only be put in place through a robust tax technology ecosystem by an interface with accounting ERP, other internal systems and external social platforms, and data sources that can be used to set up an effective tax function. This section details the role of each element of the tax technology ecosystem and recent tax tools available in the market. And since diverse technology solutions are now readily accessible, isn't it time to avail of these?*

Diagram 2: Tax ecosystem

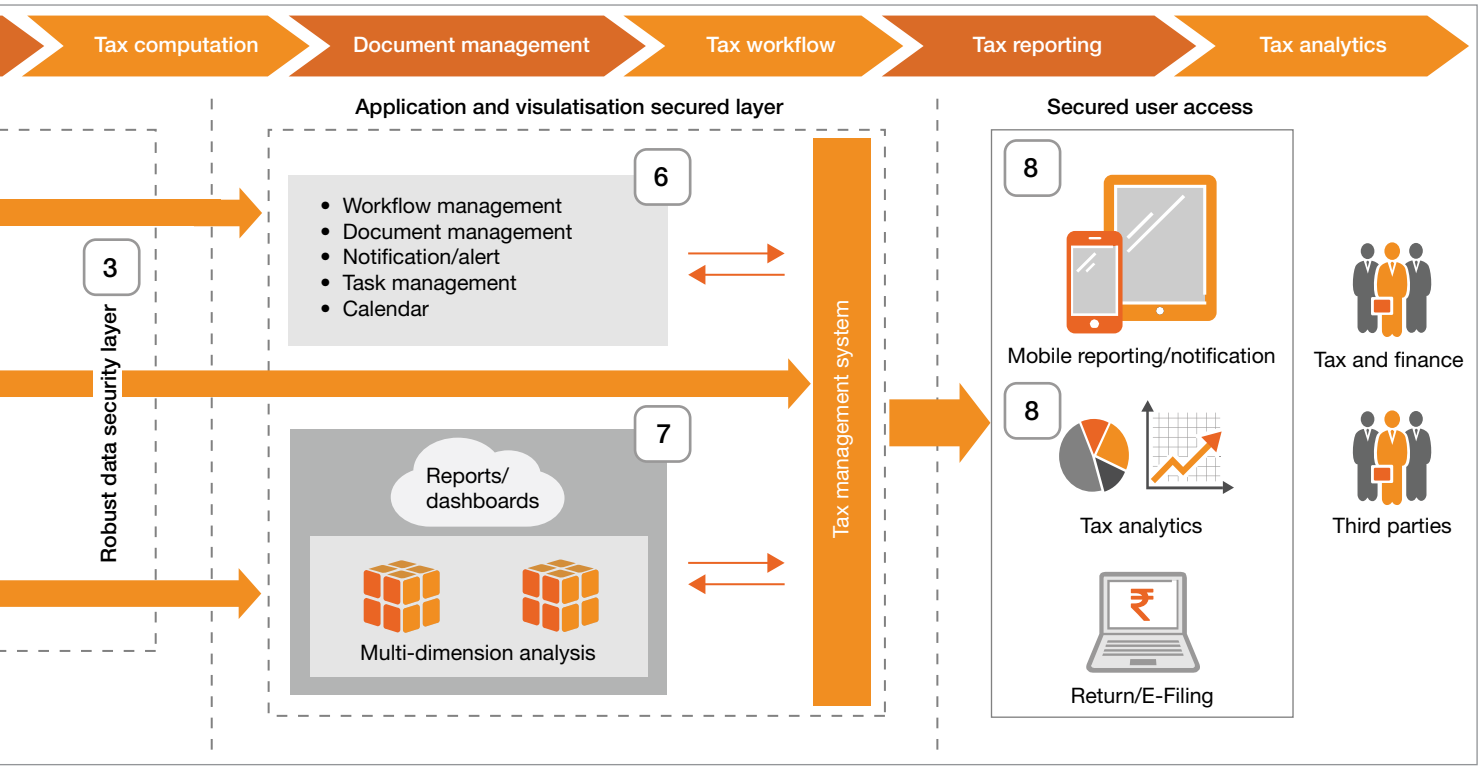



A typical tax ecosystem using the technology is depicted in Diagram 2.

As you will notice in the diagram, the tax ecosystem has an interface with the accounting ERP and other internal systems as well as with external data sources and social platforms on the extreme left. All these represent data sources that can be used in an effective tax function. This input creates a data-acquisition layer and houses data by suitably extracting and then loading it on a tax data hub or tax data mart. The tax data hub or tax data mart not only manages the data, but also documents, application software, computation engines and the institutional knowledge of tax experts. The hub, which is the key for effective management of tax data, then interacts with various applications and visualisations to put in place the workflow, documentation, reporting and interactive dashboards. Put together, this constitutes the output a tax management system needs for important notifications, reporting, compliance filings, internal functions and third parties, shown on the extreme right in Diagram 2. We have detailed below each of the elements of the ecosystem.

1. **Data sources and acquisition:** Having a cogent business-data layer to be able to use just the primary accounting information for management's decision-making and analysis has been a challenge in the tax function. Today, tax professionals spend an inordinate amount of time and effort in collecting data, related information required from various systems including ERP, fixed assets, payrolls, budgeting, banking, HR, legal and consolidation systems. This is usually followed by additional exercises such as data-cleansing, validation and mapping, and reconciliation before an organisation is able to use the data for tax-specific purposes.

Introducing a robust Extract, Transform and Load (ETL) solution is a standard solution for issues relating to acquisition of data, since these can integrate with a wide range of systems and enable rules in tax functions to be embedded at the data transformation stage. When data sources and files are identified and fields defined, automation of the data collection process is enabled, which reduces iterations in data-gathering. Data files can be mapped from the transaction stage so that real-time extraction can be executed when a transaction takes place. This ensures that data acquisition




does not entail an exercise that is different from an organisation's normal business processes. There are multiple technology vendors currently providing a wide range of ETL solutions, including SSIS (MicroSoft), PowerCenter (Informatica), Infosphere Information Server (IBM), ODI (Oracle), BODI (SAP) and many more. A tax data architect can select any of these, based on some key parameters including data sources, metadata management, licensing and other product features.

Currently, technology can help in not only storing static data in a given form, but allow selected data fields to be 'picked up' from a document by using robotics to make another document or use these in another application. Use of robotics in manipulation of data can provide new insights to organisations.

Apart from conventional ETL tools, putting in place a web-enabled data collection layer can be another way of acquiring data. Although this process has limited automation, bulk load and transformation capabilities, it can facilitate access to limited offline data in a user-friendly manner to search for scattered low-volume and event-based data. This is used for extraction of data with specific features in a short time, to provide additional support to a tax function.

It is seen that classic data sources that are accessible to tax functions are limited, whereas current technology allows access to a variety of dispersed internal and external data sources relatively easily. This opens up an entirely new vista for organisations to evaluate their capacity and possible value addition differently from the way they have been doing so far. They can now connect automatically with external data sources to obtain information on a continual basis. For example, today a tax system can bring to the attention of management any incentive-related scheme announced anywhere in the world if the organisation has the requisite technology to track amendments online. This would enable it to obtain the details immediately. Another example would be that a company's tax function is connected with social media, which would make it aware of developments and trends in a particular industry and also enable it to track NGOs or action groups expressing their points of view on its tax affairs. Consider the huge benefit of discovering in time relevant activities in community

organisations, which you may find are gearing up their activities in relation to a specific industry. This will allow you to take early account of matters that could negatively affect your organisation in the future. Today, media and community organisations have started playing a role in which they influence tax-related decisions and risks much more than ever before. Therefore, a tax function that is not connected with these through its automated data-acquisition system continues to be partially blind. Pertinent input on new, emerging and underlying trends in data on social media and external sources can be a strong lead for an organisation in its quest to gain knowledge on different opportunities for advocacy. Moreover, early intervention in global protocols could enable it to leverage opportunities and influence decisions in areas in which it may not be currently at the centre stage.

Technology now permits automatic searches for identified data fields in documents and the creation of a given format for a data template needed through the use of robotics.

Furthermore, applications can now switch to the internet and obtain data to create documents and reports or enhance machine learning, e.g., a tool to identify payments made to various countries from a large data set can now classify payments made to EU countries by searching the internet to locate a particular country in the EU.

2. **Management of master data and tax data hub:** Master data comprises specific information that is exactly the same across modules in tools (e.g., SAP or payroll) as well as across multiple business areas, e.g., customers, legal entities, cost and profit centres, employees, account charts, currency and vendors. Since financial data is captured by multiple heterogeneous systems, it is crucial to control proliferation of and inconsistency in such data in order to be able to put in place a single uniform taxonomy. Definitions of data should be agreed on across organisations and posted at an accessible location. So far, businesses have been statutory and MIS requirement-centric, and master data has been built accordingly. This has made a significant impact on their ability to use relevant data effectively for tax purposes.

Technologies are now available using which this limitation of the IT platform, being MIS- and statutory requirement-centric, has been substantially resolved. These technologies allow multiple books and versions of information to be maintained in the data mart and used effectively and automatically, as required for a specific purpose. Using technology to retrieve and maintain data that may be required for various functions will not only allow these to operate efficiently by retrieving reliable data, but also lead to consistency in application of data across the wider tax organisation for different types of taxes in diverse geographies. Such technologies help tax organisations avoid the risk that typically creeps into a tax function unnoticed due to its inability to access reliable and consistent data from a single source. Today, effective use of technology enables single-source distinctive data to be maintained and made accessible across a function quicker and more effectively than earlier. In this context, it is important for an organisation to keep in mind that consistency is now of great importance in tax functions, much more than it was ever before, because different tax organisations of governments regularly interact with each other across countries. Consequently, a technological solution that provides reasonable assurance on the reliability of data from single sources results in hitherto unimagined assurance and enables tax functions to de-risk and avoid data integrity-related issues.

One important element of technology-based data management is a tax data hub. This can be a single Enterprise Data Warehouse (EDW) or Data Lake, or even a small set of data marts. An EDW is an information repository that is optimised for reporting and analysis, and provides a consolidated view of enterprise-related data. Many organisations have been opting for an SQL Server, Oracle, DB2, Teradata or MySQL as their preferred options to create similar Tax EDW. These relational databases (RDBMS) support a wide range of ETL and visualisation or reporting tools.

Using RDBMS and ETL tools, extraction from multiple data sources to a single dedicated tax data hub can be achieved fairly easily without any technical challenge. A centralised tax data hub for all tax functions helps to ease tax reporting and compliance-related requirements for diverse users. Such a hub can be a storage shed for robust and current tax-sensitive data that can be mined or 'pushed' to other applications to facilitate analysis, audits, planning and forecasting.

For the last few years, Big Data has been used to store data sets, which have four distinctive attributes, 4 V: (a) volume (data size), (b) velocity (frequency of data), (c) variety (type of data format) and (d) value (differentiating valuable data from the rest). For a mid to large enterprise tax data hub, this can be an ideal solution, since a large volume of structured and unstructured data needs to be captured in tax. It is seen that a documented and well thought-through plan for data storage is important for its scalability and integration. However, the growth of such data sets is frequently unplanned. Another feature needed in a tax function is flexibility to make systems adaptable. This can be a beneficial, since storage in Big Data can enable different types of data from internal and external systems to be stored on a large scale at low operational costs with reasonable flexibility.

3. **Data access and data security:** Data and information (processed and unprocessed) needed for a tax function remain relevant and are often needed many years later after an event. It is therefore important that data storage protocols are carefully set up in anticipation of long-term requirements. Over the period technology is used in a tax function the relevant reports, analytics, trends, etc., become valuable data, which gives an organisation a business advantage. Therefore, a tax ecosystem needs to very carefully consider who should have access to which data and information at what point in time and for what purpose. Current technologies allow data to be clustered and made available to people easily, but there is the risk of it falling into the wrong hands. Hence, setting up of an appropriate access-related framework and protocols is of prime importance while designing a data access and security system.

We are all aware that if data is misused, this can result in immense damage to an organisation. And if this data is accessed by people who do not need it, it is a waste of time and engenders inefficiency in the organisation, due to its distraction value. Considering the criticality of data available to a tax function, which relates to an entire business, it is important that access should be allowed on a need to know basis at the appropriate time, with relevant guidance given to those accessing it. Consequently, organisations would do well to consider implementation of dynamic control as a distinct possibility, particularly in relation to extra-sensitive data. Such data can be stored in algorithms generated in a garbled form.

Data security is the key in the industry in the world of information technology. It is common to read about successful hackers' exploits against consumers, businesses or governments. We have seen the impact of information leakage in April 2016 when over 10 million pieces of financial and attorney-client-related 'supposedly' confidential information was leaked. Therefore, since the nature of tax data is highly sensitive, it is imperative for organisations to have in place robust multi-layer data security.

Most data centre designs address physical security requirements, including protection of infrastructure and buildings, and limit physical access to the data

centres. Tax technologists should design robust security models, which protect data by using software-related safeguards such as access passwords, and authentication and authorisation. Therefore, role-based security and audit capabilities, and attribute-based security are of prime importance in such scenarios. After authentication, data- security measures should be applied to multiple layers, including for authorisation of applications and at the row-column-object/report levels.

It is becoming common for revenue authorities and other regulators to seek access to the financial and tax-related data of taxpayers. This demand is going to increase in the near future. It is therefore important that due consideration is given at the design stage to meet such requirements.

In short, effective checks and safeguards should be included in software designs to avoid any leakage of information if data is published externally or is integrated with other systems. A tax technology ecosystem should incorporate security of data, a strong application security protocol for users' access and multiple checkpoints while integrating with other internal and external systems.

4. **Tax computation and analytics:** This is an area where most tax experts have felt the need for implementation and use of digital technology, but have been mainly using spreadsheet calculation or macro-enable Excel files for the past two decades. It is now high time to put in place robust tax technology tools to reduce complexity of data and ease its use. Such technology tools should score high on flexibility in order to keep pace with dynamic and ever-changing taxation rules implemented by governments and regulatory bodies, without seeing a decline in performance levels. Tax mapping, allocation, automated adjustments and calculation are the four pillars under which tax is computed.

There are a variety of tools available that can be carefully woven in the overall design of a robust computing system. A typical problem encountered is that some tools have a set of features for one kind of tax function but not for others. Example, there are hardly any tools that deal with the computation aspects of direct and indirect taxes with equal ease. It requires considerable effort to achieve integration of various tools and applications. This is one area that poses the maximum difficulty in choosing tools off the shelf. And development implemented by an inhouse technical team is too time-consuming.

It is therefore important that an appropriate battery of applications and tools are assembled, keeping in mind the requirements of a tax function. Nowadays, many tools and applications can be rented and therefore need not be paid for upfront and housed. A suite of applications needs to be carefully inventorised and connected to other parts of a design to equip it with effective computing capabilities. The temptation to bring in the latest technology could be high, and therefore, tools and applications need to be evaluated for their appropriateness and only then implemented.

The availability of technology-based automated computing systems can enable a business to understand the possible permutations and combinations of tax costs that may be of relevance for it in a particular bidding or vendor-negotiation scenario. This builds efficiency and cash savings for the enterprise. Technology-based enablers can also facilitate businesses to forecast tax costs effectively vis a vis in a manual computing scenario where the likelihood of missing out on a small but relevant assumption is higher. Various statistical models can be used for forecasting and prediction of tax, and can provide nearly accurate results. Today, there are several such tools (SAS, R, Python, MATLAB, etc.), which can be classified as generic, non-generic or language based tools. Based on their tax data-handling capabilities, ease of learning , algorithm libraries, any of the tools can be selected to forecast tax costs. The reliability and accuracy of an automated system for forecast can boost the level of confidence of a tax manager, as well as business teams, in taking decisions while negotiating with customers or vendors. Currently available technology enables standard computations and analytics to be embeded in decision-suport information, making it an easy and tangible input for business managers.

5. **Document Management System (DMS):** A shared network drive continues to be the popular choice for organisations as the primary repository for their complete tax returns, research-related memoranda, tax opinions, correspondence and supporting work-related papers. Unfortunately, a shared network drive is woefully inadequate, offers minimal control and has virtually none of the features of a formal and dedicated document management system. We have provided below a brief list of the main features that one can expect from a good document management system:

- A secure and organised electronic workplace for all returns, receipts, work-related papers, and tax planning and audit projects
- Consolidation of global unstructured data and back-up documentation from all sources with complete audit trails, including electronic documents, faxes, emails, images and electronic forms and access from an organisation's location anywhere in the world through the internet
- Audit-ready files and secure access from mobile devices
- Classification, categorisation, sorting and reporting of all documents with appropriate version control
- Mining of previously filed work papers, responses to revenue audits and tax research papers by using detailed context relationships, advanced searches and consistency analyses
- And the most important feature—easy searches on content and categories of documents, introduction of Optical Character Recognition (OCR) for searches on unstructured documents (images, scanned copies, etc.), an important aspect of an advanced DMS

Having an advanced DMS in place can reduce the response time for an audit query significantly, without compromising on its quality. One can also look for technology-enabled features where relevant documents are automatically 'pulled' into the DMS on a real-time basis from linked sources. Moreover, DMS can be configured to provide reports of any unusual activity in relation to documents, which may need to be investigated.

6. **Tax workflow:** It is easy for a small business with two or three team members, who take care of the entire tax calculation and filling process, to collaborate and communicate with each other seamlessly . But it is difficult to control the various tax processes where multiple team members work on their finance and tax function-related responsibilities.
The complexity also increases in a single jurisdiction with geographically spread-out offices. It is seen that in most tax functions not all the activities are performed by resources trained in the tax domain, particularly in widely dispersed organisations. Many tax activities are undertaken in the shadow mode. In this case, it is a mammoth task for tax controllers to keep track of multiple critical tasks without a good workflow. A flexible workflow needs to:

- provide the status of processes and the workload.
- enable collaboration across the tax and finance functions and external agencies.
- minimise back-and-forth communication via email and voice mail.
- regularly update the common calendar to track the deadlines of a tax function.
- identify critical activities in a large project.

The introduction of an efficient tax workflow with a defined responsibility, matrix, dependence patterns, ownership, notifications and alarms can bring in transparency and control in tax operational processes and also help significantly in collaborative technical consultation.

It can also embed guidance to task-owners. This enables an increased level of control on the quality of compliance. It is of paramount importance for owners of tax functions to be confident that they are in control and that their workflow matrix and notification systems (indicating compliance and/or non-compliance) enables them to achieve the outcome they desire.

Data and information collected by using a robust workflow design and tracking system, which can be made practically foolproof, can also be used to reach an agreement with revenue authorities to serve as acceptable evidence. For example, a GPS tracker in a car can be used to produce a movement-logged report to indicate actual use of the car in a city over a period of time. Such a log report may be accepted by the revenue authorities as evidence.

7. **Tax reporting and accounting:** Robust and timely reporting will satisfy tax authorities, regulators and other stakeholders. Most tax functions face burdensome compliance- and reporting-related requirements. And even after

completing all the required tasks, starting from data collection, tax account mapping, aggregation, adjustment and many more steps, it is often difficult to deliver required reports on time every time. Use of manual processes to compute data and make various iterations compromises its quality. In less enabled systems, it is observed that to meet a timeline, suboptimal reporting frequently creeps into processes. The cost of remediation is high. Now multiple tools are available ranging from MSBI (MicroSoft), Tableau, QlikView, OBIEE, SAP BI to SAS to configure reports and dashboards.

Therefore, it is important to have a robust reporting framework that is:

- Accurate
- Quick
- Accommodates a variety of reports (canned, ad-hoc, interactive, etc.) in desired formats (Web, Excel, PDF and as data feed to external systems) and can be accessed from multiple devices (desktops, tabs, mobiles, etc.)
- Enables auto reconciliation with collated data at various levels

It is seen more and more that tax regulators are using rules for tax base measurement that are different from those used in accounting GAAP. At times, different rules are applied for different taxes in the same jurisdictions. This necessitates virtually maintenance of multiple books for different tax reporting and computation purposes. Of late, we have been seeing technology systems that can handle multiple books. However, the cost of such systems needs to be evaluated carefully, since these are not inexpensive.

## Use of emerging technologies

Tax technologists need to not only understand legacy technologies, but also the latest and emerging ones, with their strengths and weaknesses. Using the right set of tools or platforms can significantly augment the benefits provided by a tax technology solution.

We will touch briefly on the latest technologies and how these can benefit enterprises on tax-related matters.

To start with, of late social networks, mobile computing, analytics and cloud computing (SMAC) has been helping organisations achieve operational efficiencies. They are capitalising on digital ecosystems that are expanding due to the confluence of information. SMAC challenges enterprises to take advantage of the positive disruptions it enables, while they operate at the rapid pace of innovation and change.

Table III: Relevance of SMAC and AI in tax technologies

| Trends | Work-related | Application to tax technology |
|---|---|---|
| Social | Who we work with | • Collaboration with tax teams and regulators on service delivery and feedback<br>• Increased awareness on real-time basis<br>• Assistance in investigation of fraud or tax leakage<br>• Evidence-gathering and discovery |
| Mobile | How we work | • Easy collaboration — not confined to the office<br>• Access to real-time information from anywhere<br>• Proactive communication using notifications and alerts |
| Analytics | What we work on | • Analyses of large volume of data—structured and unstructured (Big Data analytics)<br>• Analyses of data for enhanced decision-making and reduced complexity<br>• Use of predictive analytics leading to improved tax planning, forecasting and risk assessment<br>• Input on tax for negotiation and bids |
| Cloud | Where we work | • On-demand network access to a shared pool of networks, servers, storage, applications and services<br>• Increased flexibility in business and ability to scale up and down, based on business need<br>• Reduced IT costs and increase in business continuity through robust disaster recovery and archive mechanisms |
| Artificial Intelligence /Machine Learning | How we can work | • Auto assimilation and classification of narrative data<br>• Language-interpretative conclusions<br>• Producing semi-finished documents and write-up |

Apart from using SMAC in the tax technology ecosystem, of late tax technologists have been working on improving various tax processes, including tax mapping and automated adjustment based on taxonomy or habitats, by using machine learning. For example, machine learning can be used in tax account mapping by reading the taxonomy and chart of account code to the description. This can drastically reduce the time spent on the process and manual process errors. Although adoption of technology in tax is relatively recent, many tools that use different technologies are available.

Table IV: Some tax tools

| S. No | Tools | Description |
|---|---|---|
| 1 | Withholding tax reconciliation | • Helps in implementation of the rules of withholding tax and produces reconciliation from record-level data |
| 2 | Depreciation on eligible assets | • Helps to maintain tax and book depreciation schedules and updates in sync with changes in fixed assets |
| 3 | GST/VAT returns/ Analytics | • Manages compliance and reports duly set up trends, deviations, ratio analysis, etc. |
| 4 | Litigation management | • Logs cases and provides relevant input for decision-making |
| 5 | Corporate Tax returns/Analytics | • Assists in preparation of tax computation and analytics |
| 6 | Individual tax returns | • Completes individual tax returns |
| 7 | GPS locator | • Provides biometric evidence of the situs of a person by using mobile phone data acceptable for agreements with authorities |
| 8 | FATCA/CRS reporting | • Weaves multi-country rules in a reporting framework |
| 9 | CbCR Analytics | • Allows insights in playing 'what if' scenarios |
| 10 | Task Work Plan Organiser | • Puts in place standard workflow for tasks and allows replication |
| 11 | Tax code supplement for SAP | • Implements multiple tax codes for classification in the SAP environment to generate tax input |
| 12 | Workflow visualisation | • Enables visualisation of actual workflow of past transactions from databases of mails and transaction records |

## Conclusion

The introduction of technologies, globalisation, complex tax rules and the need for transparent systems has made technology in tax a 'must have' rather than 'good to have' for the taxpayer as well as for the tax administration.

Since diverse technology solutions are now available, it is time to avail of these and make an enhanced contribution by transforming tax functions to support decision-making and mitigate risk. And remember that it is practical to go ahead and implement technology with standard functionalities early in an area of high impact, and thereafter use this as a core to build enhancements. Implementing technology in your organisation is your opportunity to give it a competitive advantage.

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# Notes

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