TAX INCENTIVES FOR INNOVATION IN THE LIGHT OF IT GOVERNANCE BEST PRACTICES (EVIDENCE FROM THE FINANCIAL SERVICES INDUSTRY AND IMPLICATIONS FOR EXECUTIVES)

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Abstract: IT governance frameworks and in particular COBIT, are today accepted internationally. Particularly in the emerging market of Turkey, there have been efforts to encourage the use of IT governance but practitioners have had varying perspectives. IT governance allows businesses, for example, those in the financial service markets, to align themselves with strategies in the information technology sector. Many companies adopt IT governance to increase efficiency, increase IT infrastructure control, reduce costs, make better decisions and motivate employees (Lahti and Peterson, 2007). Companies with integrated IT governance are in a stronger position to increase their organizational accountability, offering better returns on investment.

Innovation serves the same purpose as IT governance, (managing innovation is a part of COBIT) fostering competition, productivity and job creation – essential factors for sustainable growth. Innovation extends beyond mere technological advancement, encompassing new business models and organizational change. Innovation is frequently a product of R&D efforts, driven by vectors like IP and software, alongside organizational and human capital. R&D carries risks both in uncertainty of investment outcomes and spillover effects to third parties; this risk typically results in below-socially-optimal R&D investment. Governments frequently intervene to increase R&D investment, either through direct sponsorship of research or through policy measures, e.g. tax breaks to correct the market failure (OECD, 2013).

Keywords: Tax Incentives, Innovation, Research&Development, IT Governance, COBIT 5.

Introduction

The march of globalisation has affected a wide range of organisations in almost every aspect of their businesses (Peters and Savoie, 2000). Crucially, globalization links to new concepts such as innovation, recognised as the primary factor driving economic growth in both developed and developing countries, as well as governance and corporate governance, accepted as the primary philosophy of “legistative responsibilities”, “accountability” and “transparency” increasing and supporting ethical decision making within organisations (Good Governance Guide, 2015).

COBIT 5 IT governance incorporates innovation management, allowing businesses, for example those in financial service markets, to align themselves with strategies in the information technology sector. In this context tax incentives play a crucial role in supporting markets, a market intervention taking the form of various policies and regulations in order to achieve economic stability, enhance economic development and reach social and economic targets. To this end it is an undeniable fact that governments have an essential role to play.

Materials and Methods

The emphasis placed on the role of innovation management by COBIT 5 IT governance frameworks within Turkish businesses is not without costs. By promoting IT governance benefits, organizations hope to achieve the advantages propagated by IT governance frameworks. Studies have shown that while implementations of IT

governance frameworks are typically beneficial, their adoption can impose high costs (Calder, 2007). Many organizations in Turkey are willing to pay the costs associated with IT governance in the hope that returns on the investment will exceed the costs of implementation. There have been inconsistencies in IT governance - unrealistic benefits stated or published - that differ from the practical elements of the framework. IT governance frameworks have on some occasions demonstrated themselves to be more theoretical rather than practical.

The paper addresses the different theoretical aspects of innovation, research and development and IT governance in the context of COBIT 5, as well as tax incentives for innovation in the Turkish financial industry. In so doing it seeks to evaluate existing tax incentives promoting innovation in the Turkish financial industry and assess whether or not tax incentives for innovation constitute effective government intervention. It will also evaluate the need for harmonization among related governmental bodies which have imposed COBIT 5 on the industry, i.e. the Turkish Banking Regulation and Supervision Body and Republic of Turkey Prime Ministry Undersecretariat of Treasury, and which offer tax incentives, i.e. the Ministry of Finance.

I elected to use interviews to conduct a qualitative research study for this paper. This paper's first information collection, by means of interviews, was conducted with board members, IT Steering Committee members, both senior and line managers, and managerial staff of other IT domains from several Turkish financial companies in order to adopt a holistic approach covering all these managerial positions. In line with Benbasat et al., (1987, p.373) I chose multiple case studies to compare and contrast among different organisations. This selected group of people is in a position to provide the most articulate responses (Prasad et al., 2010), given their understanding of the IT system hierarchy.

In conducting these interviews, I preferred to use voice-recordings where possible, since they allow the interview content to be revisited later, preserving both accuracy and detail (Yin, 2006).

Results and Discussion

1. Innovation: "Innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (OECD, 2005, p.46). "The concept of innovation used in the Frascati Manual is characterised by the following": (OECD, 2005, p-34-35).

a - Innovation is associated with uncertainty over the outcome of innovation activities.

b - Innovation involves investment.

c - Innovation is subject to spillovers.

d -Innovation involves the use of new knowledge or new use or combination of existing knowledge.

e - Innovation aims at improving a firm's performance by gaining a competitive advantage.

"Innovation is broader in scope than R&D activity, including improvements in logistical, support and sales/marketing efforts. Moreover, innovation extends to include the acquisition of external knowledge or capital goods, activities typically outside the scope of R&D. The innovation activities that a firm chooses to undertake will hinge upon its access to information, knowledge, technology and financial and human capital" (OECD, 2005, p.18-20). This broad definition encompasses a wide range of possible innovations; a narrower categorisation might be the implementation of one or more types of innovations, e.g. product or process innovations. "The minimum requirement for an innovation is that the product, process, marketing method or organisational method must be new to the firm (or a significant improvement) (OECD, 2005, p.46-47).

"Firms often invest heavily in market research and developing new marketing strategies, targeting new markets or sales strategies. These marketing practices are important for the success of new products, playing a crucial role in product and process development through demand-led innovation (OECD, 2005, p.12).

"Organisational innovations not only support product and process innovation; they can also have an important impact in their own right. Organisational innovations can improve work quality and efficiency, information exchange, and improve the adoption and uptake of new knowledge and technologies. Not all changes in organisational operations are to be considered innovations; creating a written strategy document to improve knowledge management within a firm is not in itself an innovation, while the first implementation of a new method in businesses practice, external relations or workplace organisation could be considered organisational innovation. (OECD, 2005, p.12).

Organisational innovations' role in engendering technological innovation may have been understated, as Lam comments (2005, cited by OECD, 2005, p.12), "economists assume that organisational change is a response to technical change, when in fact organisational innovation could be a necessary precondition for technical innovation".

"The inclusion of marketing and organisational innovation also allows for more extensive analysis of the interactions between different types of innovations, in particular the importance of implementing organisational changes in order to benefit from other types of innovations" (OECD, 2005, p.12).

2. R&D: "Research and experimental development (R&D) consists of creative and systematic work undertaken in order to increase the stock of knowledge and devise new applications for available knowledge. R&D activity must satisfy 5 core criteria: Novelty, creativity, uncertainty, systematic, transferability and / or reproducibility" (OECD, 2015, p.28). The term R&D covers three types of activity: basic research, applied research and experimental development. "Basic research is experimental or theoretical work seeking new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. Applied research is original investigation undertaken in pursuit of a specific practical aim or objective. Experimental development is systematic work, drawing on knowledge gained from research and practical experience to produce new products or processes or to improve existing products or processes" (OECD, 2015, p.29). "There are many flows of information and knowledge in the R&D system. Experimental development can inform basic research, and there is no reason why basic research cannot lead directly to new products or processes" (OECD, 2015, p.45).

2.1. Fields of R&D Classification (OECD, 2015, p.59).

1-Natural sciences (computer & information sciences, mathematics, physical sciences etc)

2-Engineering and technology (electrical engineering, electronic, information engineering etc)

3-Medical and health sciences

4-Agricultural and veterinary sciences

5-Social sciences (economics and business- political sciences etc)

6-Humanities and the arts.

2.2. Examples of R&D in banking and insurance (OECD, 2015, p.69)

1-Mathematical research relating to financial risk analysis

2-The development of risk models for credit policy

3-The experimental development of new software for home banking

4-The development of techniques for investigating consumer behaviour for the purpose of creating new types of accounts and banking services

5-Research to identity new risks or new characteristic of risk that need to be taken into consideration in insurance contracts.

3. IT Governance: Many people are increasingly interested in using IT in this era of globalization (Ilharco (2002). Mehta (2011, p.19) defines IT as "computers, telecommunications and automation technologies" For the purpose of this paper, ISO's (International Standards Organization 38500, 2008, cited by Bin-Abbas and Bakry, 2014, p.261) definition is used: IT refers to "resources required to acquire, process, store and disseminate information".

The best way to understand the concept of IT governance is to analyse the different aspects of the term. Kooper et al. (2011, p.196) define IT governance as "the primary way that stakeholders can ensure that investments in IT create business value and contribute toward meeting business objectives." In addition, Phillips (2012, p.18) observes that "IT Governance is a subset of Corporate Governance". Here it is necessary to clarify two important terms, governance and corporate governance: according to Muller (2009, cited by Too and Weaver, 2014, p. 1383), "governance provides a framework for ethical decision-making and managerial action within an organization that is based on transparency, accountability, and defined roles". Concerning corporate governance, the OECD (2004, p.11) states that "corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company, the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interests of the company and its shareholders and should be conducive to effective monitoring."

3.1. IT Governance Best Practices: COBIT is the official best practice for Turkish financial institutions, a legal requirement enforced in the banking industry by the Turkish Banking Regulation and Supervision Body, and the Republic of Turkey Prime Ministry Undersecretariat of Treasury in the Turkish insurance industry.

COBIT 5, the latest iteration of the COBIT framework, provides a comprehensive framework that assists enterprises in achieving their objectives for the governance and management of enterprise IT, helping enterprises derive optimal value from IT resources by achieving and maintaining a balance between potential payoffs, risk levels and resource use (ISACA, 2012a).

COBIT 5 identifies 37 governance and management processes for IT (Snedaker and Rogers, 2006), and in so doing facilitates IT governance and management across the entire enterprise, encompassing the end-to-end business and IT functional areas of responsibility and addressing the IT-related interests of internal and external stakeholders.

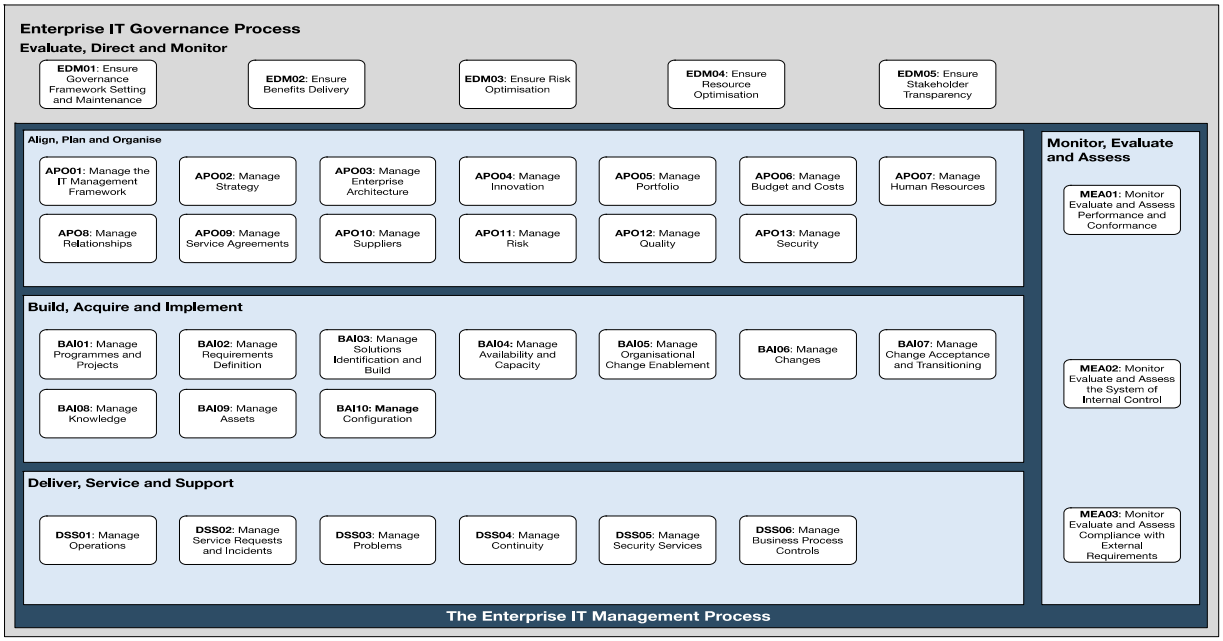

Figure 1: COBIT 5- 37 Process Reference Model (PRM). Source: Adapted from ISACA, 2012c, p.61.

The following table summarises how COBIT 5 supports adoption of the standard's principles and implementation approach. "The ISO / IEC 38500:2008 standard - Corporate Governance of Information Technology, is based on six key principles, the practical implications of which are explained here, together with how COBIT 5 guidance enables best practices. (ISACA 2012a, p.57) The OECD's categorizations of types of innovation can be combined with COBIT 5 to illustrate how COBIT 5 guidance enables good practices, as shown in Figure 2.

Responsibility, strategy, acquisition, performance, conformance and human behaviour are shown to be principal components of COBIT 5 guidance. Moreover COBIT 5's prescriptions for corporate IT can be considered supplementary components of OECD's definition of innovation.

TYPES OF INNOVATION	OECD Definitions	HOW COBIT 5 GUIDANCE ENABLES GOOD CORPORATE GOVERNANCE OF IT PRACTICES					
		PRINCIPLE 1 RESPONSIBILITY	PRINCIPLE 2 STRATEGY	PRINCIPLE 3 ACQUISITION	PRINCIPLE 4 PERFORMANCE	PRINCIPLE 5 CONFORMANCE	PRINCIPLE 6 HUMAN BEHAVIOUR
Product Innovation	"A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. The term "product" is used to cover both goods and services"						
Process Innovation	"A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products. Process innovations also cover new or significantly improved techniques, equipment and software in ancillary support activities, such as purchasing, accounting, computing and maintenance. The implementation of new or significantly improved information and communication technology (ICT) is a process innovation if it is intended to improve the efficiency and/or quality of an ancillary support activity"						
Marketing Innovation	"A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations include significant changes in product design that are part of a new marketing concept. Product design changes here refer to changes in product form and appearance that do not alter the product's functional or user characteristics"						
Organisational Innovation	"An organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations. Organisational innovations can be intended to Organisational innovations in business practices involve the implementation of new methods for organising routines and procedures for the conduct of work. These include, for example, the implementation of new practices to improve learning and knowledge sharing within the firm. An example is the first implementation of practices for codifying knowledge, e.g. establishing databases of best practices, lessons and other knowledge, so that they are more easily accessible to others. Another example is the first implementation of practices for employee development and improving worker retention, such as education and training systems. Other examples are the first introduction of management systems for general production or supply operations, such as supply chain management systems, business re- engineering, lean production, and quality-management systems. Innovations in workplace organisation involve the implementation of new methods for distributing responsibilities and decision making among employees for the division of work within and between firm activities (and organisational units), as well as new concepts for the structuring of activities, such as the integration of different business activities.						

Figure 2: Combining the OECD's definition of innovation and how COBIT 5 guidance enables good corporate governance of IT practices. Source: Adapted from ISACA 2012a, p.57.

MAPPING COBIT 5-IT RELATED GOALS to PROCESSES -2-																	
			Alignement of IT and business strategy	IT compliance and support for business compliance with external laws and regulations	Commitment of executive management for making IT-related decisions	Managed IT-related business risk	Realised benefits from IT-enabled investments and services portfolio	Transparency of IT costs, benefits and risk	Delivery of IT services in line with business requirements	Adequate use of applications, information and technology solutions	IT agility	Security on information, processing infrastructure and applications	Optimisations of IT assets, resources and capabilities	Enablement and support of business processes by integrating applications and technology into business processes	Delivery of programmes delivering benefits, on time, on budget,and meeting requirements and quality standards	Availability of reliable and useful information for decision making	IT compliance with internal policies	Competent and motivated business and IT personnel	**Knowledge, expertise and initiatives for business innovation**
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
COBIT 5 Process			**Financial**						**Customer**		**Internal**							**Learning and Growth**	
Align, Plan and Organise	APO01	Manage the IT Management Framework																	**Primary**
	APO02	Manage Strategy																	**Primary**
	APO03	Manage Enterprise Architecture																	Secondary
	APO04	**Manage Innovation**																	**Primary**
	APO05	Manage Portfolio																	Secondary
	APO06	Manage Budget and Costs																	
	APO07	Manage Human Resources																	**Primary**
	APO08	Manage Relationships																	**Primary**
	APO09	Manage Service Agreements																	
	APO10	Manage Suppliers																	Secondary
	APO11	Manage Quality																	Secondary
	APO12	Manage Risk																	Secondary
	APO13	Manage Security																	

Figure 3: Mapping COBIT 5-IT Related Goals to Processes-2- (Align, Plan and Organise). Source: ISACA 2012b, p.228.

Processes for Governance of Enterprise IT aims to achieve an organisation's predefined targets and strategies, by addressing the needs, conditions and activities of all IT-stakeholders, and coordinate different stakeholder groups within IT to achieve best possible parallel-performance. Processes for Management of Enterprise IT encompass the planning, development, management and monitoring of the activities carried out within the organization in accordance with these targets and strategies (Stroud, 2012).

In this context, innovation management is covered by the Align, Plan and Organise (APO) process. Innovation management is therein subdivided into 4 main goals: Financial, Customer, Internal and Learning and Growth. Each of the APO subcategories are defined as either primary or secondary in their importance to Learning and Growth through Knowledge, expertise and initiatives for business innovation (ISACA 2012b, p.228).

Related financial goals:
01-Alignment of IT and business strategy (Secondary / S),
04-Manage IT related business risk (S),
05-Realised benefits from IT-enabled investments and services portfolio (Primary /P)

Related customer goal:
08-Adequate use of applications, information and technology solutions (P)

Related internal goals:
09-IT agility (P),
11-Optimisations of IT assets, resources and capabilities (P),
12-Enablement and support of business processes by integrating applications and technology into business processes (S),
14-Availability of reliable and useful information for decision making (S)

Related learning and growth goal:
17- Knowledge, expertise and initiatives for business innovation (P)

APO04 Manage Innovation	
	Domain: Align, Plan and Organise
Process Description	
Maintain an awareness of information technology and related service trends, identify innovation opportunities, and plan how to from innovation in relation to business needs. Analyse what opportunities for business innovation or improvement can be created by emerging technologies, services or IT-enabled business innovation, as well as through existing established technologies and by business and IT process innovation. Influence strategic planning and enterprise architecture decisions.	
Process Purpose Statement	
Achieve competitive advantage, business innovation, and improved operational effectiveness and efficiency by exploiting information technology developments	
The Process Supports the Achievement of a Set of Primary IT-related Goals	
IT-related Goal	**Related Metrics**
05 Relaised benefits from IT-enabled investments and services portfolio	*Percent of IT-enabled investments where benefit realisation is monitored through the full economic life cycle
	*Percent of IT services where expected benefits are realised
	*Percent of IT -enabled investments where claimed benefits are met or exceeded
08 Adequate use of applications, information and technology solutions	*Percent of business process owners satisfied with supporting IT products and services
	*Level of business user understanding of how technology solutions support their processes
	*Satisfaction level of business users with training and user manuals
	*NPV showing business satisfaction level of the quality and usefulness of the technology solutions
09 IT Agility	*Level of satisfaction of business executives with IT's responsiveness to new requirements
	*Number of critical business processes supported by up-to-date infrastructure and applications
	*Average time to turn strategic IT objectives into an agreed-on and approved initiative
11 Optimisation of IT assets, resources and capabilities	*Frequency of capability maturity and cost optimisation assessments
	*Trend of assessment results
	*Satisfaction levels of business and IT executives with IT-related costs and capabilities
17 Knowledge, expertise and initiatives for business innovation	*Level of business executive awareness and understanding of IT innovation possibilities
	*Level of stakeholder satisfaction with levels of IT innovation expertise and ideas
	*Number of approved initiatives resulting from innovative IT ideas
Process Goals and Metrics	
Process Goal	**Related Metrics**
1-Enterprise value is created through the qualification and staging of the most appropriate advances and innovations in technology IT methods and solutions	*Increase in market share or competitiveness due to innovations
	*Enterprise stakeholder perceptions and feedback on IT innovation
2-Enterprise objectives are met with improved quality benefits and / or reduced cost as a result of the identification and implementation of innovative solutions	*Percent of implemented initivatives that realise the envisioned benefits
	*Percent of implemented initiatives with a clear linkage to an enterprise objective
3-Innovation is promotd and enabled and forms part of the enterprise culture	*Inclusion of innovation or emerging technology-related objectives in performance goals for relevant staff
	*Stakeholder feedback and surveys

Figure 4: APO04 Manage Innovation. Source: Bernard, 2012, p.6**.**

It can be interpreted from the figure that APO04 Manage Innovation covers diversified goal-types reflecting each of the definitions of innovation as described above: Product, process, marketing and organisational. It is therefore apparent that APO04 Manage Innovation indirectly addreses responsibility, strategy, acquisition, performance, conformance and human behaviour.

4. Tax Incentives

"Governments in several countries provide tax support for R&D with the aim of promoting R&D investment in the economy by offering preferential tax treatment for eligible R&D expenditures, especially to business enterprises. Tax expenditures are complex objects of measurement; not all statistical systems separately capture all types of tax relief measures" (OECD, 2015, p.343). Likewise, in Turkey, tax incentives have a crucial role to play in supporting markets in order to enhance Turkey's international competitive power through increased efficiency, cost reduction, job creation etc.

4.1. Tax Incentives for R&D Activities in Turkey

The Law on Supporting Research, Development and Design Activities dated 28.02.2008 and numbered 5746 and the Law on Technology Development Zones dated 26.06.2001 and numbered 4691 are the two main laws that regulate incentives aimed at Research and Development activities in the Turkish Finance Sector.

4.1.1 - The Law on Supporting Research, Development and Design Activities dated 28.02.2008 and numbered 5746

The Law on Supporting Research, Development and Design Activities dated 28.02.2008 and numbered 5746, defines R&D and Innovation as follows:

R&D: "Research and Development Activity (R&D): Research and development are original, experimental, scientific activities with technical content consisting of works conducted systematically to increase the accumulation of knowledge formed by the culture, humans and the knowledge of the society and to use it to design new processes, systems and applications, the activities of designing environment friendly products or software and activities that provide scientific an technologic development, focus on a scientific and technologic uncertainty" (Article 2, Clause A of Law 5746).

Innovation: "the processes that meet social and economic needs, created with the idea of a new product, service, application, method or business model which may be successfully launched to the markets or which may create new markets and the results of these processes" (Article 2, Clause B of Law 5746).

According to the Application and Supervision Regulation on Supporting Research, Development and Design Activities published at the Official Gazette dated 10.08.2016 and numbered 29797;
The activities that do not constitute R&D or innovation are indicated below. (Article 5, Clause 1of Law 5746)

a) Marketing activities, market screenings, market researches or sales promotion
b) Quality control
c) Researches in social sciences
d) Oil, natural gas, mineral reserves search and drilling activities
e) Clinical trials prior to medicine production license which do not have at least two of their phases performed abroad and clinical trials that are performed after production license
f) Use of processes that are invented without being in the scope a R&D project or the use of already developed processes
g) Formal changes that are not aimed at R&D and Innovation activities which include change of shape, color, decoration and similar esthetic and visual changes
h) Excluding programming languages and operating systems, software development activities made by using current software that assist in the development of web sites and similar
ı) Ordinary and repetitive activities related to software that do not include scientific or technologic progresses or a solution for technologic uncertainties
j) Research expenses related to establishment and organization
k) Investment activities aimed at production and production infrastructure, planning of commercial production and expenditures related to serial production
l) Production and distribution by obtaining copies from prototypes with the purpose of giving samples and consumer tests for advertisement purposes,

m) Without being in the scope of an R&D project, direct or embedded technology transfer that do not serve to produce a new process, system or product,
n) With the exclusion of acquiring intellectual property rights, activities aimed at the product or process developed through R&D or innovation activities.

The Law numbered 5746 on Supporting Research, Development and Design Activities entered into force in 2008 and the tax related supports and incentives provided in the framework of the Law are explained below.

4.1.1.1. R&D and Design Deduction

The total of the expenses related to R&D and innovation or design (100%) realized in the R&D/Design Centers in the scope of the law numbered 5746 on Supporting Research, Development and Design Activities may be subject to reduction until 31/12/2023 in determining the revenue of the corporation.

Furthermore, in R&D Design Centers that obtain an increase of at least twenty percent compared to the previous year in any of the indicators below, 50 percent of the amount of increase over the previous year in innovation and design expenses made during that year may be subject to a deduction in determining the business income.

- The share of R&D expenses in the total turnover or the share of design expenses in the total turnover,
- Number of registered national and international patents,
- Number of internationally supported projects,
- The ratio of researchers with postgraduate degrees to the total R&D personnel,
- The ratio of the total number of researchers to the total R&D personnel,
- The ratio of the turnover obtained from new products produced as a result of R&D to the total turnover.

The amount of R&D and design deduction which cannot be subject to a reduction due to the income being insufficient in the framework of the provisions of the Law numbered 5746 is transferred to the subsequent periods. The transferred amounts shall be taken to account without any restriction in time in the following years by increasing it in line with the revaluation rate determined each year according to the Tax Procedure Law 213.

4.1.1.2. Incentive on Income Tax Withholding

In the scope of Law 5746, with the exclusion of the civil servants, from the income tax calculated over the wages of the R&D and support staff working in the R&D centers obtained in return to such work;

- 95% for those who have a Doctorate or Masters degree in one of fields of the fundamental sciences,
- 90% for those who have a Masters degree or bachelor degree in one of fields of the fundamental sciences,
- 80 % for others shall be written off by deduction from the tax accrued over the withholding tax statement.

4.1.1.3. Support to the Employer's Contribution to the Insurance Premium

In the scope of the provisions of Law 5746 with the exclusion of the civil servants, half of the employer's share in the insurance premium calculate over the wages earned in return to their works related to R&D an innovation activities of the R&D and Support personnel working in the R&D Centers are met from the allowance made by the Treasury in the Ministry of Finance's budget.

4.1.1.4. Stamp Duty Exemption

Papers issued in relation to all R&D an innovation activities in the scope of the Law numbered 5746 are exempt from stamp duty.

4.1.1.5. Customs Tax Exemption
Goods imported to be used in R&D; innovation and design projects have been exempted from customs duty and all funds as well as stamp duty and fees in relation to papers issued and transactions made in this framework.

4.1.1.6. Additional Support Extended to Personnel Graduated from the Fundamental Sciences
To the R&D Centers employing R&D staff equipped with at least bachelor degree in the domain of Fundamental Sciences (mathematics, physics, chemistry, biology), the portion of the salaries of such personnel amounting to equal of the monthly gross amount of minimum wages applied during that year shall be met from the allowance made at the budget of the Ministry of Science Industry and Technology for a period of two years.

In this framework:
-The number of personnel to benefit from the support at each of the R&D centers may not exceed ten percent of the total number of personnel employed in the R&D center during the related month.

-It is essential that the personnel to be employed is hired after 1/3/2016 (included) and is employed in the related enterprise for the first time.

-The enterprise is under the obligation of notifying the Ministry in written or in electronic environment the matters related to the recruitment or leave of employment of the personnel it employs.

-Payments to be made in relation to the support is made by the Ministry in monthly periods by taking to account the number of insurance premium days concerning the personnel included in the scope of the support.

-In order to effect payments, it is necessary to present the report indicating that the above conditions have been fulfilled and the wages related to the period have been paid to the related personnel. The amount found appropriate by the Ministry is paid until the end of the month following the delivery date of the report at the account number indicated by the enterprise.

4.1.2 - The Law on Technology Development Zones dated 26.06.2001 and numbered 4691
In the Law on Technology Development Zones dated 26.06.2001 and numbered 4691, R&D, Innovation and Technology Development Zone have been defined as follows.

R&D: “Research and development activity (R&D): Research and Development are creative works conducted on a systematic basis to increase the knowledge accumulation consisting of culture, humans and society and to use it to design new processes, systems and applications including also software” (clause c of the article 3 of the Law numbered 4691).

Innovation: “means the processes created with the idea of a new product or goods, services, applications, method or business model that can meet social and economic needs, which can be successfully launched in the existing markets or which may create new markets as well as the results of these processes”(clause g of the article 3 of the law numbered 4691).

Technology Development Zone (Zone): “a site where academic, economic and social structure are integrated or a technology park which has such features within the same university, high technology institute or the area of a R&D center or Institute where companies that use high/advanced technologies or which aim new technologies benefit from their facilities and produce/develop technology or software, operate to transform a technologic invention into a commercial product and, method or service and in this way contribute to the development of the zone ”.

As the law numbered 4691 is focused on Technology Development Zones it is a more specific law:

“According to the regulation the revenues of taxpayers operating in the technology development zones obtained exclusively from their software and R&D activities in this zone are include in the scope of their software activities. Activities such as complementary training, consultancy, maintenance, additional equipment may be

performed in the technology development zone. However there is no tax incentive for the revenues obtained from those activities." (ruling dated 17.04.2014).
The supports and incentives extended to the Technology Development Zones are indicated below and to benefit from the mentioned support and incentives, it is necessary for companies to be located (by founding a new company /opening a branch of the existing company) within the Technology Development Zones indicated in Law 4691 regarding Technology Development Zones.

4.1.2.1. Corporate Tax Exemption
The revenues of taxpayers operating in the technology development zones obtained exclusively from their software and R&D activities carried out in this zone are exempt from income and corporate taxes until the date of 31.12.2023. The taxpayers' income obtained from activities performed outside the zone may not benefit from the exemption even if it is generated from software and R&D activities.

4.1.2.2. Income Tax Exemption (+Stamp duty exemption in salaries)
With the Law numbered 6170 Amending the Law on Technology Development Zones, it has been decreed that the wages related to their work in this zone of researchers, software developers, R&D and their support personnel working in the zone shall be exempt from all taxes until the date of 31.12.2023.

4.1.2.2. Insurance Premium Support
Although there is no support concerning insurance premiums in Law 4691 on the Technology Development Zones, there are arrangements aimed at supporting the employers' share in the insurance premium stated in the Law 5746 on Supporting Research and Development Activities concerning the wages of R&D and software personnel operating within the organization of the technology park. In this scope, in the framework of the Law 4691, half of the employer's share of the insurance premium calculated over the wages of the personnel who are exempt from income tax in the scope of this work is met by the Treasury.

4.1.2.3.VAT Exemption
In the scope of the provisional Article 20 of the Value Added Tax Law "According to the Law numbered 4691 on Technology Development Zones, during the period in which the entrepreneurs' revenues generated exclusively from those zones from services and deliveries such as system management, data management, business applications, sectoral, internet, mobile and military command and control applications software are exempt value added tax.

However, any arrangement has not been made in relation to the VAT exemption stated in the Law numbered 6170 and the Law numbered 4691 and the regulations that are currently stated in the Law shall be valid until 31.12.2023.

4.1.2.4. Customs Duty Exemption
Goods imported to be used in R&D, innovation and design projects have been exempted from customs duty and all funds as well as stamp duty and fees in relation to papers issued and transactions made in this framework.

Law 4691 on Technology Development Zones	**Law 5746 on Supporting Research, Development and Design Activities**
Corporate tax exemption	100% R&D and Design deduction
Income tax exemption (100%)	Incentive on Income tax withholding (80% -90%-95%)
Support to the Employer's Contribution to the Insurance Premium (50%)	
Customs duty exemption	
Support for Fundamentals Sciences	
Stump duty exemption (only on payrolls)	Stamp duty exemption
VAT exemption	

Figure 5: Components of Supports and Incentives of Laws 4691 and 5746.
Source: Pwc, 2015, p. 3.

Conclusion

Although research and development activities as well as innovation activities may be borderline activities, it would be wrong to expect that each innovation activity includes research and development activity or that each research and development activity would result in innovation.

The OECD has gathered innovation types under 4 main categories as product, process, marketing and organizational but has not limited the definition of R&D to software. Similarly, in the framework of COBIT 5, while the innovation management scope aims to realize different IT objectives such as Alignment of IT and business strategy, Management of IT related business risk, Optimization of IT assets, resources and capabilities, knowledge, expertise and initiatives for business innovation, it is clear that COBIT extends its focus beyond R&D.

The Frascati Manual gives examples of R&D in banking and insurance; in addition to software works such as the development of new software for home banking also gives examples that include works like surveys, the development of techniques for investigating consumer behavior for the purpose of creating new banking services and research to identify new risks or new risk characteristics that need to be taken into consideration in insurance contracts.

When incentives targeting innovation activities in the Turkish financial sector are considered, it is seen that the majority of these incentives are incentives aimed at R&D activities, activities which are treated as equivalent on a one-to-one basis with software development activities.

Suggestions

Finance companies may only obtain benefits of profitable return on investments, obtaining expected added value from innovation activities, increased competitive power in the international markets through corporate governance and through IT governance as part of corporate governance. In this context, innovation management ought be performed as a necessary part of IT governance for finance companies.

Turkish finance companies ought to carry out lobbying activities to bring together government authorities such as the Banking Regulation and Supervision Agency (BDDK), the Undersecretariat of the Treasury and the Ministry of Finance. Such lobbying activities, with international arrangements such as the OECD regulations, COBIT 5 criteria are important for establishment of a finance system that operates harmoniously with international regulations.

Transition to and integration of ERP systems, improvements in quality of service provided to existing clients and new target markets, changes which occur in business operations, restructuring, and training and motivating the company staff in this respect are needed. These activities each include the capacity for innovation but extend well beyond software development activity. Therefore this tax incentive system, aimed at fostering innovation, should be freed from its software R&D-focused perspective and should be further developed to strengthen development of corporate structures.

While harmonization with international arrangements such as COBIT 5 that guarantee IT governance competency is will eventually occur without intervention, the judicious use of tax incentives can be used to offset the potential financial costs and competitive imbalances that may arise from the adoption of such frameworks by businesses.

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