

Linking Business Goals to IT Goals and COBIT processes

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Introduction

Information technology (IT) has become pervasive in today's dynamic and often turbulent business environments. While in the past, business executives could delegate, ignore or avoid IT decisions, this is now impossible in most sectors and industries. In this context, many organizations have started with the implementation of IT governance in order to achieve the fusion between business and IT and to obtain the needed IT involvement of senior management (Van Grembergen [2003], Van Grembergen and De Haes [2004], Weill and Ross [2004]). IT governance can be defined as the leadership and organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategy and objectives (ITGI, [2003]). As described in the aforementioned definition, a crucial element in IT governance is achieving a better link between business and IT, also referred to as Strategic Alignment. However, this relationship between business and IT is very complex and addresses aligning business goals to IT goals and IT processes.

To gain a more thorough, and at the same time more pragmatic understanding of how business goals drive IT goals in different industries and how the IT goals are supported by IT processes, the IT Governance Institute (ITGI) assigned a research project to the ITAG Research Institute of the University of Antwerp Management School (www.uams.be/itag). Thanks to Erik Guldentops for sharing his ideas on this project and placing it in the context of the further COBIT developments. The results of the research is owned by ITGI and will be leveraged to improve the COBIT framework, more specifically in linking COBIT processes to IT goals and the IT goals to the business objectives and governance processes that drive them.

This paper summarises some results and conclusions of the first phase of this research. The material will be refined in further research initiatives during 2005. It appeared that defining the link between business goals and IT goals was not always an easy exercise and that many of the identified goals were very high-level and generic.

Pilot study methodology

To achieve more insight in the complex relationship between business goals, IT goals and IT processes, eight different industries were analyzed: financial, health, government, retail, pharmaceutical, utilities, IT services and consulting and transportation. Within each industry, interviews were conducted with an IT manager, a business manager and a senior consultant/expert of the sector. During these interviews, questionnaires were used to identify the most important business goals and IT goals contributing to those goals. In addition, COBIT processes were identified that support the achievement of the reported IT goals. These relationships were summarized, for each industry, in two matrices and supplemented with background information on the major characteristics, value drivers and risk drivers of the industry under review.

The reported results regarding the characteristics and the value and risk drivers are a synthesis of the answers of the interviewees and consequently their perception. The IT goals/business goals matrices are based on the information collected during the interviews. Whenever IT and/or business goals were very similar, they are labelled by one unique term. The IT goals/COBIT matrices are based on the input of the interviewed consultants and when necessary are complemented by the researchers. For reasons of conciseness and manageability the list of COBIT processes is reduced to the 15 most important COBIT processes as selected in 2001 by ISACA.

Specific research results

As an example, this section will summarise the results of two sectors from which well-balanced results were obtained: the financial and the pharmaceutical sector. For each sector, the most important characteristics and value and risk drivers are described. Next, two matrices are shown, one presenting the links between business goals and IT goals and one between COBIT processes and IT goals. Reading these matrices in combination enables a better understanding of how IT processes support IT goals that in turn support business goals. In the matrices, a distinction is made between primary (P) and secondary (S) relationships.

The financial sector

Some characteristics of the financial sector

- Very high transaction volumes with little hardcopy evidence.
- Complex data processing for each transaction.
- Very stringent security measures for each transaction dictated by law and the nature of the data.
- Criticality of availability of systems and data: most IT systems have to be available 24/7. That used to be a discriminating feature between financial institutions but nowadays is a utility, a basic requirement.
- Increasing emphasis on timely processing or even straight through processing – the immediate and automated processing of an entire transaction.
- High reliance on IT, perhaps more so than in any other sector/industry.
- High IT budgets often accounting for approximately 15% of the entire annual company budget.
- Not a *first mover* in IT, rather an *early follower*: adopting technologies that have not yet matured might backfire in this highly visible sector.

- Highly regulated by national and international laws and standards, such as Basel II.

Some value and risk drivers of the financial sector

- Value drivers:
 - Diminishing transaction costs: because of higher transaction volumes even small improvements may lead to substantial cost reductions.
 - Introduction of new and innovative services such as e-banking.
 - Increasing emphasis on customer orientation instead of product orientation.
- Risk drivers
 - Security breaches: because of the high visibility, security breaches – be they small or large – are widely noticed and inevitably have important implications.
 - High liability factor: the huge amounts of money being processed by the financial institutions lead to high liability and even apparently insignificant mistakes can lead to considerable losses.
 - Many changes in a short span of time: pressured by ever tightening legislation (e.g. Basel II and Sarbanes-Oxley) and competition (e.g. the introduction of internet banking applications), the financial sector has been forced to make many changes to their IT architecture in a relatively short period of time.

Matrix IT Goals – Business Goals

Business Goals	IT Goals												
	Developing innovative IT services with a focus on information security	Fulfilling SLA's with business departments	Increasing IT department efficiency	Integration and consolidation of different IT departments	IT disaster recovery and business continuity	IT governance / IT strategic alignment	IT measures to satisfy Basel II requirements	Lowering cost of transaction processing	Making IT measurable	Optimizing the IT infrastructure	Rapid development of new IT services	Reducing external staff	Standardising IT systems
Achieving compliance with Basel II regulations					S	S	P						
Improving competitiveness through IT	P					P				S	P		
Improving customer orientation and service	P		S	P	S	S			P	S			
Post-merger integration and consolidation				P		S				S		S	S
Reducing operational cost			P	P	S	S		P	P	P		P	P
Reducing transaction cost			P	S		S		P	P	S			
Risk management	S	P	S	S	P	P		S				P	S
Shortening service development lifecycle						S			S		P		
Tailoring solutions for different target groups	P					S							

Matrix IT Goals – COBIT Processes

	IT GOALS											
	Developing innovative IT services with a focus on information security	Fulfilling SLAs with business departments	Increasing IT department efficiency	Integration and consolidation of different IT departments	IT disaster recovery and business continuity	IT governance / IT strategic alignment	Lowering cost of transaction processing	Making IT measurable	Optimizing the IT infrastructure	Rapid development of new IT services	Reducing external staff	Standardising IT systems
PLANNING & ORGANISATION												
1.0 Define a Strategic IT Plan	P	S	S	P	S	P	S	P	P	P	P	P
3.0 Determine Technological Direction	P	S	P			P	S		P	P		P
5.0 Manage the IT Investment	S	S	S	P		P	S		S	S		P
9.0 Assess Risks	P			P	S	P	S		S		S	S
10.0 Manage Projects		S	S			P			S	S		S
ACQUISITION & IMPLEMENTATION												
1.0 Identify Automated Solutions	S	S	S	S			S		S			S
2.0 Acquire and Maintain Application Software	S	P	P	S			P		S	S		S
5.0 Install and Accredite Systems		P	P	S			S		S	S		S
6.0 Manage Changes		P	P				S		S	S		S
DELIVERY & SUPPORT												
1.0 Define and Manage Service Levels		S	P			S	S		P			
4.0 Ensure Continuous Service			P		P	S						
5.0 Ensure Systems Security	P		S		P	S						
10.0 Manage Problems and Incidents		S	S		S	S						
11.0 Manage Data			S		S			P				
MONITORING												
1.0 Monitor the Processes	S		P			P	P	P	P			

The pharmaceutical sector

Some characteristics of the pharmaceutical sector

- Large market capitalization.
- Considerable growth rate: five years ago the sector had a yearly growth rate of 23% and currently still has a yearly growth of about 9%.
- Importance of Research and Development (R&D).
- High reliance of R&D on IT: most pharmaceutical companies have a large investment in IT. A respondent mentioned that approximately 19% of their sales revenue is invested in IT. In these companies IT is not considered an overhead but a crucial enabler of their business activities.
- Importance of engineering new molecules.
- Highly regulated: the Food and Drug Administration (FDA) e.g. has an enormous set of rules that pharmaceutical companies have to comply with, impacting both R&D and sales.

Some value and risk drivers of the pharmaceutical sector

- Value drivers:
 - Improved development programs: because the core business of most pharmaceutical companies is creating and marketing new molecules, one of the most important value drivers is creating a more efficient molecule development program.
 - Outsourcing: many pharmaceutical companies are outsourcing the design of new molecules to smaller bio-engineering entities.
 - Patent creation: patents are necessary to protect R&D investments.
 - Protection of information: with only a few molecules discovered per year, confidentiality and protection of the information regarding these molecules is paramount.
- Risk drivers:
 - Regulatory control: in an attempt by government agencies to guarantee the quality of the molecules, rules and regulations are imposed for every aspect of the development process which often inhibits creativity. Regulations also have an impact on IT systems, e.g., all scientific data regarding pharmaceutical products

have to be preserved for at least 30 years which may hinder the upgrade to more modern systems.

- o Increased R&D budget.
- o Diminished yields on R&D: it becomes more and more difficult to engineer successful molecules. While R&D provides a multitude of molecules, only very few make it to the manufacturing stage. Even the most successful companies only produce around three to four new molecules per year. The risk that the huge R&D investment does not deliver the expected results is very real.
- o Leakage of information to competitors.
- o International price differences of drugs.

Matrix IT Goals – Business Goals

Business Goals	IT Goals									
	Centralization of control over IT systems	Developing and implementing new applications	Educating personnel to work efficiently with new applications	Improving IT cost efficiency	Investigating IT off-shoring possibilities	IT disaster recovery and business continuity	Protecting data and systems	Standardizing IT systems	Taking IT measures to satisfy FDA requirements.	
Achieving compliance with FDA regulations						S	P			P
Defending patents							S			
Developing new molecules		P	S				P			S
Future-proofing the organization	S	P		S	S	S	S	S	S	S
Improving operational excellence	P		S	P	P				P	
Improving organizational structure	S			S	S				S	
Improving R&D processes.		P							S	
Increasing revenue										S
Networking and strategic alliances							S			S
Protection of information	S		S			P	P			

Matrix IT Goals – COBIT Processes

	IT GOALS										
	Centralization of control over IT systems	Developing and implementing new IT systems applications	Educating personnel to work efficiently with new applications	Improving IT cost efficiency	Investigating IT off-shoring possibilities	IT disaster recovery and business continuity	Protecting data and systems	Standardizing IT systems	Taking IT measures to satisfy FDA requirements		
PLANNING & ORGANISATION											
1.0 Define a Strategic IT Plan	P				P	S					
3.0 Determine Technological Direction	S							P			
5.0 Manage the IT Investment	S			P	P			S			
9.0 Assess Risks					S	S	S	S	S		
10.0 Manage Projects				S							
ACQUISITION & IMPLEMENTATION											
1.0 Identify Automated Solutions		P		S					S		
2.0 Acquire and Maintain Application Software		P		S					S		
5.0 Install and Accredite Systems		P		S					S		
6.0 Manage Changes	S	P		S	S		S	S			
DELIVERY & SUPPORT											
1.0 Define and Manage Service Levels				S	P						S
4.0 Ensure Continuous Service	S			S		P					S
5.0 Ensure Systems Security	S			S	S		P				S
10.0 Manage Problems and Incidents		S			S	S	S	S			S
11.0 Manage Data					S	S	S	S			
MONITORING											
1.0 Monitor the Processes		S									

General research results

After analysis of all sectors, it was found that 46 percent of all business goals and 37 percent of all IT goals provided by the interviewees could be considered “specific” to their sector, i.e. they are not equally important for all other sectors. Examples are “Achieving compliance with Basel II regulations” as a specific business goal for the financial sector and “Taking IT measures to satisfy FDA requirements” as a specific IT goal for the pharmaceutical sector. On the other hand, more than fifty percent of all goals are generic, such as “Improving customer orientation and service”, “IT disaster recovery and business continuity” and “Standardizing IT systems”.

The business goals and IT goals that were mentioned most frequently are summarised in the matrix below. The links between those business and IT goals are set by the researchers as an example, they are not based on the input of the interviewees. It appears that the most frequently mentioned business goals are rather high-level and generic. The IT goals are more at a lower level but still generic.

Business Goals					
Being a caring organization for employees			S		
Improving customer orientation and service			P	P	
Improving operational excellence	S	S	P	S	S
Increasing profitability	S		S		S
Reducing operational cost	P		S		P

IT Goals

Improving IT cost efficiency

IT disaster recovery and business continuity

IT governance / IT strategic alignment

Protecting data and systems

Standardizing IT systems

The matrix below maps the five most frequently mentioned IT goals to the fifteen most important COBIT processes. These links are again filled out by the development team as an example.

PLANNING & ORGANISATION					
1.0 Define a Strategic IT Plan	P	S	P		P
3.0 Determine Technological Direction	S		P	S	P
5.0 Manage the IT Investment	P		P		S
9.0 Assess Risks		P	P	P	
10.0 Manage Projects	P		P		
ACQUISITION & IMPLEMENTATION					
1.0 Identify Automated Solutions	S			S	P
2.0 Acquire and Maintain Application Software	S				P
5.0 Install and Accredite Systems	S			S	S
6.0 Manage Changes	S			S	S
DELIVERY & SUPPORT					
1.0 Define and Manage Service Levels		P	S	S	
4.0 Ensure Continuous Service		P		S	
5.0 Ensure Systems Security		P		P	
10.0 Manage Problems and Incidents	S	P		P	
11.0 Manage Data				P	S
MONITORING					
1.0 Monitor the Processes	S	S	S	S	S

IT Goals

Improving IT cost efficiency

IT disaster recovery and business continuity

IT governance / IT strategic alignment

Protecting data and systems

Standardizing IT systems

Conclusions

This eight sector research project provides a first view on the linkages between business and IT goals, and the relationships between COBIT processes and IT goals. It appeared that defining the link between business goals, IT goals and IT processes was a difficult exercise for the interviewees, and that many of the mentioned business and IT goals were generic. The given examples of linking IT processes to IT goals and business goals can provide guidance for in-house COBIT implementations, more specifically in defining those IT processes to focus on.

However, conclusions can only be tentative because they are based on a limited set of arbitrarily chosen interviewees per sector. To accredit more value to the results, a more detailed study is

needed, based on in-depth case studies and a larger number of respondents. This more detailed research could provide more insight in the cascade starting from high-level strategic business goals to lower level operational IT goals and processes. This cascade would certainly more closely represent a real-life business scenario.

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Related Reading

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About UAMS

UAMS (University Antwerp Management School) has the ambition to be a “learning partner in management”, by offering a broad range of training programmes for future and current managers in the business world, in public services and social-profit organizations. The priorities cover optimal quality control, interactive teaching methods, an emphasis on research-based knowledge and best practice, an international orientation and a continuous adaptation of our programmes to the needs of the market.

About ITAG

The Information Technology Alignment and Governance (ITAG) Research Institute, was established in within UAMS to host applied research in the domains of IT Governance and business/IT alignment. The research centre is an initiative of Prof. dr. Wim Van Grembergen and dr. Steven De Haes. Both have research and practical experience in the IT Governance and Strategic Alignment domains. Recently, this team was reinforced by senior researcher Hilde Van Brempst.

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