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# Prioritising and Linking Business and IT Goals in the Financial Sector

Wim Van Grembergen, Ph.D., University of Antwerp School
Hilde Van Brempt, University of Antwerp Management School
Steven De Haes University of Antwerp Management School

## Abstract

*IT governance and strategic alignment are issues that are high on the agenda in many organisations. To address those challenges, it is important that an organisation has a good view on its business goals and how IT goals and IT processes support the achievement of those goals. This research is aimed at providing guidance in building up such a cascade of business goals, IT goals and IT processes. This research builds on the list of business goals and IT goals, provided in COBIT4.0, and further validates and elaborates this material leveraging the Delphi research method.*

## 1. Introduction

Today, IT is more critical to the business than ever (ITGI [7]), moving away from a cost-only factor to a service that is actually contributing in the achievement of the business objectives. Aligning IT to the business, also known as strategic alignment remains one of the major challenges of IT management and business management in general. In IT related literature, amongst the different alignment definitions, a well-perceived view on strategic alignment is "the degree to which the information technology mission, objectives and plans support and are supported by the business mission, objectives and plans" (Chan [3]). In the same article, Chan defines strategic alignment as the fit between the priorities and activities of the IT function and those of the business unit. Numerous articles have been written on strategic alignment and according to different research in this area, there's still a lot of work ahead for improving the strategic fit between IT and business (Chan [3], Luftman [9], Reich [11]).

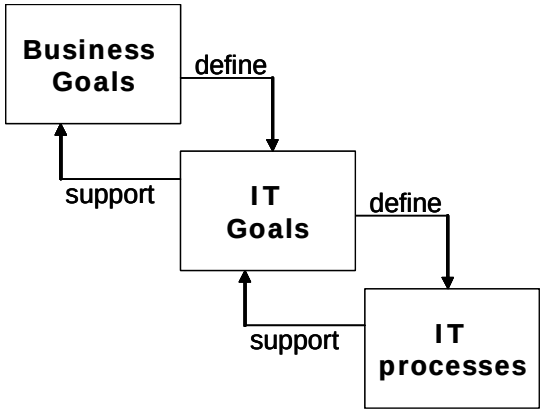
To address the alignment challenges, it is important for an organisation to have a clear and in-depth view regarding its business goals and how IT goals and IT processes support those goals. Each organization should own clear business goals and a related business strategy, communicated to and adopted by the entire organization. In earlier research on aligning IT and business goals (Van Grembergen et al. [14], Benson [2]) it was confirmed that in practice this is not always the case. Business strategy and goals are not always formally written out and if so, it is not always the case that people throughout the organization are aware of it. Preferably, IT management is involved early in the business strategy definition process, especially in those companies that highly rely on IT, as also promoted by the IT governance framework COBIT 4.0 (Control Objectives for Information and Related Technologies), which states in its control objectives on business – IT alignment: "…Make sure the business direction to which IT is aligned is understood. The business and IT strategies should be integrated, clearly linking enterprise goals and IT goals and recognising opportunities as well as current capability limitations, and broadly communicated. Identify where the business (strategy) is critically dependent on IT and mediate between imperatives of the business and the technology, so agreed priorities can be established." (ITGI [6])

## 2. Research scope

The focus of this research is on understanding the relationship between business goals, IT goals and IT processes, as illustrated in Figure 1. In achieving strategic alignment, it is important to clearly understand business and IT goals and to identify priorities and relationships. The defined IT goals in turn can be translated into more detailed IT processes, supporting IT goals and by extent business goals. A scan through literature learns that, although this subject is practical relevant, not a lot of research has been executed in this domain. It is therefore clear that a more thorough research of this cascade is needed.

In order to gain a better understanding of the cascade of business goals, IT goals and IT processes, a pilot study (Van Grembergen et al. [14]) was conducted where eight industries were analysed. In-

depth interviews in each of these sectors were carried out with business and IT people. As a result, a list of 20 generic business and 28 generic IT goals was generated. Additionally the inter-relationship between business goals, IT goals and IT processes were identified. The results were used and published in the IT governance framework COBIT 4.0 (ITGI [6]).




*ITGI, COBIT 4.0, 2005, online available at www.itgi.org*

***Figure 1: Cascade of business goals, IT goals and IT processes***

Primary objective of this paper is to validate and prioritise the set of business and IT goals identified in the pilot study. A second objective is to gain more insight into how IT goals contribute in achieving the business goals. It is recognised that the result of prioritising and linking business goals and IT goals can be different depending on certain contingencies such as industry. Therefore, this validation and prioritisation effort will be performed for the financial and insurance industry only. However, recommendations are made to expand this research in a next stage to other industry sectors.

## 2.1 Research method

The proposed model in Figure 1 is one of the core concepts of COBIT 4.0 and seems to be rapidly adopted by practitioners. On the other hand, it is felt that appropriate and scientific theories supporting these concepts are still lacking.

In such an emerging knowledge domain, applying the Delphi research methodology can be very powerful. Linston and Turoff ([8]) characterise the Delphi method “as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem”. Researchers typically employ this method in cases where judgmental information from field experts is indispensable, using a series of questionnaires interspersed with controlled feedback. This is confirmed by Akkermans et al. ([1]) in their Delphi study on the impact of ERP on supply chain management: “for this type of explanatory, theory- building research, a Delphi study is an appropriate research design”. The Delphi approach also has the advantage that direct confrontation between the experts is avoided (Okoli et al. [10]). One widespread variant of the method is the ‘ranking-type’ Delphi, to build consensus about the relative importance within a list of items (Schmidt [12]).

During this Delphi research, a team of experts was asked to prioritise a list of business goals, IT goals and IT processes by using a ranking technique. Different rounds of rankings were performed in order to reach an acceptable consensus level between the experts. The consensus level is measured through the Kendall coefficient of concordance which is a commonly used metric in Delphi studies (Schmidt [12], Siegel [13]).
Instead of having the expert team build a list of business and IT goals from scratch, this research started from the existing lists of goals, which were based on the outcome of the pilot study executed in 2005 (Van Grembergen et al., [14]).

## 2.2 Selection of the expert team

Because the scope of this research is limited to finance and insurance companies, it was important to compose an expert panel with people working in or having experience in the sector. The objective of the research is to validate and link business and IT goals, implying that the group must contain people who can provide valid input to both domains. As a major source to identify experts, the Information Systems Audit and Control Association (ISACA) member database was used. From this database, business and IT people were invited to participate, who identified themselves as auditor or as business or IT managers at CxO level and who are active in a company with more than 150 employees in the sector Financial/Banking or Insurance. One of the assumptions was that the experts, holding a management position or being an auditor, have sufficient knowledge on both IT and business goals. Additionally, the group of experts was complemented with academics and consultants holding specific experience in the financial sector.
The first round of the Delphi research started with a team of 38 experts, geographically spread over 25 countries worldwide. In total, three questionnaire rounds were carried out with the same expert group. 38 complete answers were received after round one, 30 answers after round two and 22 answers after round three. This implies a 21% to 27% drop-off rate after each round. According to literature on Delphi methods, expert groups with more than 20 members are recommended.

## 2.3 Financial sector

Priorities in business and IT goals may differ from company to company, based on a set of contingencies, being size, culture, market position, IT dependency, etc. Instead of working over a broad set of different companies and trying to generate one overall ordered list of important goals, a sector-oriented approach was chosen. It is acknowledged that also organisations operating in the same sector can have different priorities for their strategy and goals. Then again, a set of more generic characteristics may identify a specific sector and they can be used as a good baseline for comparison. From the pilot study (Van Grembergen et al. [14]), a set of characteristics and value and risk drivers was generated and these are now used as background when analyzing the results.
From the eight sectors used in the previous research (financial, health, government, retail, pharmaceutical, utilities, transportation and IT services and consultancy), the financial industry was

selected to be used as a pilot for further validation. Amongst the different industries, financial services, together with manufacturing and retailing, is the first industry to use information technologies and as such is already more matured in these domains, making empirical research interesting in this sector (Chiasson et al. [4]). Therefore it was decided to concentrate this research in the financial sector, being banks, financial and insurance companies.

## 2.4. Research Process

Figure 2 visualises the different process steps for this research project.

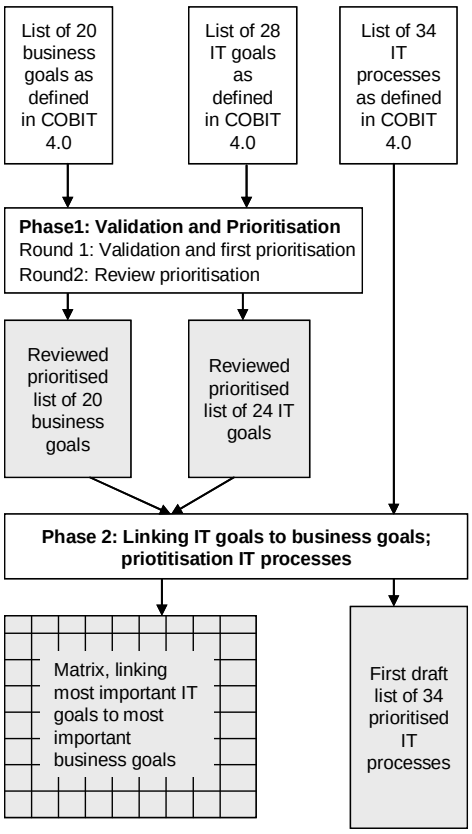



***Figure 2: Research process***

**Phase 1: Prioritising Business and IT goals.**

In this first phase, the existing list of 20 business goals and 28 IT goals were validated and prioritised by the group of experts. The outcome of this phase contains a reviewed and prioritised list, containing the most important business and IT goals for the financial and insurance sector.

This phase was executed in two rounds. In a first round, the experts were asked to validate the lists and then to prioritise the goals. The lists of goals were presented to the experts in a semi-random order, meaning the goals were not ordered beforehand; they were presented in a categorised format, using the respective balanced scorecard perspectives (BSC). For the validation of the goals on completeness and clarity, the experts could propose any missing goals and they could provide remarks and feedback on existing goals. The expert members were then asked to rank both lists by

constructing a top-10 list. In order to facilitate this ranking process, expert members could first rate each goal, by assigning a score between 1 (not important) and 5 (very important). Next, the top 10 list of most important goals could be constructed. During the processing of the given scores, the ranking results were totalled together for all 38 responses, by giving the number one most important goal a 10, the second most important goal a 9 until the tenth most important goal a 1. Because the results received from the initial scoring (between one and five) did provide less granular information for the ranking compared to the results received from the top-10 ranking, they were not used for any further analyses.

During a second round, the reviewed lists of goals were presented to the expert team. Typical for the Delphi method is that during different rounds, a consensus is reached. In order to accomplish this, the (average) group results from the first round were presented to each of the experts together with their personal answers. Experts were asked to review and re-evaluate their personal prioritisation based on the results from the team. In practice, most experts did re-evaluate their scores and adjusted their rankings.

Based on the totalled results, a strong top 10 list of most important business goals and 15 top most important IT goals was deducted. The top list of goals only slightly differed in rankings between round one and round two. The Kendall coefficient of concordance (W) is used to measure the degree of consensus between the different rankings. Schmidt ([12]) offers an interpretation of Kendall's W, indicating for this research that both for the business goals ranking (W=0,43) and the IT goals ranking (W=0,50) the level of consensus is considered moderate after the second round (Figure 4 and Figure 6). This result together with the fact that the top 10 list of prioritised goals (business and IT) only slightly differed between round one and round two, founded the decision not to start a third round.

**Phase2: Linking business/IT goals and prioritising IT processes.**

In the second phase, the list of most important business goals and most important IT goals (from phase one) were linked together in order to understand how IT goals contribute in achieving the business goals. Additionally a prioritisation exercise for the 34 COBIT IT processes was done. The outcome includes a linking matrix between IT goals and business goals in the finance and insurance industry and a first prioritised list of IT processes in support of that.

In this phase, the lists of business and IT goals were not used to their full extent, for reasons of practicality: it was practically not feasible to ask the experts to rate a list of more than 20 IT goals against 20 business goals (too long questionnaires). And because previous research phase resulted in a strong list of 15 IT goals and 10 business goals, these reduced lists were used in the remaining research steps.

The same expert team was asked to identify for each of the 10 most important business goals, those IT goals that contribute in achieving the particular business goal. A specific IT goal could be of primary, secondary or no importance in achieving a specific business goal. For each business goal /IT goal relation, the results of the 22 respondents were added together, by assigning a score zero to 'no link', a score two to a secondary link and a score four to a 'primary link'. Between the lowest total (16)

and the highest total (88), three even ranges were calculated, so the scores could again be translated to a primary (P), a secondary (S) and no (blank) link (Figure 7).
During the same round, the experts were asked to rate and rank an existing list of COBIT 4.0 IT processes by using the same ranking technique as for the business and IT goals. The IT processes were presented in a semi-ordered list, being the original COBIT 4.0 list from where the processes are categorised and numbered in their specific domains.

## 2.5. Questionnaires

The questionnaires themselves were simple and straightforward. The experts only had to score and rank a given set of goals. During the first round additional goals could be added and at any point in time feedback could be given. There was no direct contact between the experts and the researchers; only if there were questions or ambiguities in the given answers, the researcher took contact with the expert in order to sort this out. All questionnaires were sent and answered via email. The questionnaires were pre-tested by a small team of five individuals, all experts in the financial industry. These results were not integrated in the other results and were only used to optimise the research process.

## 3. Results

This research delivers different outcomes (see also Figure 2) focused at the financial and insurance sector: reviewed and prioritised lists for business goals and IT goals, a matrix linking the most important business goals to the most important IT goals and a first version of a prioritised list of IT processes.

## 3.1. Reviewed and prioritised list of business goals

In the first round, the experts could propose new business goals and provide feedback on existing ones. Consolidated from all the new goals received, eight ‘candidate new business goals’ (Figure 3) were added to the list, so they could be selected during the ranking process of round two. After round two, based upon the totalled scores, three ‘new’ business goals were finally included in the reviewed list, being #16 ‘improve corporate governance’, #17 ‘manage business change’ and #20 ‘ensure business continuity and disaster recovery’.

| |
|---|
| Build or improve the company’s brand or image |
| Manage business change |
| Budgetary control |
| Ensure business continuity an disaster recovery |
| Align business processes with customer processes |
| Improve corporate governance |
| Manage outsourcing |
| Improve knowledge retention levels and management capabilities |

***Figure 3: Candidate new business goals after round one***

Additionally, after the first round, three business goals from the initial list did receive overall low scores and were in total ranked as the lowest. For the second round these goals were marked as ‘candidate goals for removal from the list’, so the expert team could still decide to keep them, which did not

happen after round two. Business goals that did not make it in the final reviewed and prioritised lists (Figure 4), were not identified by any of the experts or did receive very low scores and were only mentioned once or twice in the ranking. From the original list of business goals, the three goals 'optimise asset utilisation', 'transparency' and 'automate and integrate the value chain' were not included in the final list.

In some cases, a newly added goal can hold a better description for another goal that was removed. For example, the new goal #16 'improve corporate governance' could be seen as a better definition for the removed goal 'transparency'. The newly added goal #20 'ensure business continuity and disaster recovery' could be seen as a more detailed view of the existing business goals #2 'manage business risks' and #6 'service availability', stressing the importance of business continuity and disaster recovery in the financial and insurance sector. A justification for the removal of goals "optimise asset utilisation" and 'automate and integrate the value chain' might be sought in the fact that these are defined at a too high and generic level.

The final reviewed and prioritised list of 20 business goals is presented in Figure 4. Together with the calculated scores, the final rankings from round one and round two are included. The reason why the scores in round two are overall lower than those in round one is because the number of respondents declined from 38 to 30. The column '% mentioned' indicates the percentage of respondents that did rank the business goal in its top-10. When observing these figures, it can be concluded that the top 10 prioritised business goals is a strong list: every of the nine first goals in the list was mentioned by 70% to 90% of the experts in their personal top 10; and goal #10 was selected by more than half of the experts.

It can be observed that business goals categorised under the 'Financial' BSC perspective do score very high in the prioritised list, followed by some 'Customer' related goals. Business goals from the 'Internal' and 'Learning&growth' perspective did receive lower rankings. It is typical for banking and insurance firms, to give high rankings for business goals that have a direct impact on their financial results, such as #1'Increase revenue', #3 'Expand market share' and #5 'Return on investment'. One of the main drivers in the financial sector is the compliancy with external laws and regulations, such as Sarbanes-Oxley or the sector-specific Basel II, which justifies the high ranking of the business goal #7 'Compliance with external laws and regulations'. And because banks and insurance companies do rely on delivering a good service towards their customers, it is logical to find #4 'Improve customer orientation and service' together with #6 'Service availability' in the top 10 of important business goal. One of the value drivers of the financial sector is that it operates in a highly competitive market and introduction of new and adapted services and products are crucial. Goals like #10 'Agility to changing business requirements' , #8 'Offer competitive products' and indirectly #9 'Acquire and maintain skilled and motivated people', which is the only 'Learning&growth' goal in the top 10, do underpin these characteristics. Reason why a goal such as #20 'Ensure business continuity and disaster recovery', which matches very well with the high liability factor of the sector ends rather low in the list, may be because the #2 'Manage business risk' and #6 'Service availability' goals, do cover this domain as well, as already mentioned before. Those goals are defined at a higher level and do cover different risk and availability related domains. From this example it is clear that the different goals in this list are

defined on different levels (from more strategic /long-term to more operational/short-term), implying that further fine-tuning of the list should be considered.

| | | Round 1 | | Round 2 | | |
|---|---|---|---|---|---|---|
| **Business Goals** | **BSC Perspective** | **Score** | **Rank** | **Score** | **%Mentioned** | **Rank** |
| Increase revenue | Financial | 182 | 1 | 207 | 77% | 1 |
| Manage business risks | Financial | 167 | 3 | 170 | 80% | 2 |
| Expand Market share | Financial | 179 | 2 | 163 | 70% | 3 |
| Improve customer orientation and service | Customer | 164 | 4 | 158 | 90% | 4 |
| Return on investment | Financial | 162 | 5 | 129 | 83% | 5 |
| Service availability | Customer | 133 | 7 | 122 | 83% | 6 |
| Compliance with external laws and regulations | Internal | 120 | 8 | 117 | 83% | 7 |
| Offer competitive products and services | Customer | 138 | 6 | 116 | 70% | 8 |
| Acquire and maintain skilled and motivated people | Learning& Growth | 98 | 9 | 89 | 80% | 9 |
| Agility in responding to changing business requirement (time to market) | Customer | 97 | 10 | 65 | 53% | 10 |
| Improve and maintain business process functionality | Internal | 66 | 14 | 37 | 23% | 11 |
| Product/business innovation | Learning& Growth | 85 | 11 | 35 | 33% | 12 |
| Obtain reliable and useful information for strategic decision making | Customer | 59 | 16 | 35 | 23% | 12 |
| Lower process costs | Internal | 70 | 13 | 32 | 23% | 14 |
| Improve and maintain operational and staff productivity | Internal | 62 | 15 | 29 | 27% | 15 |
| Improve corporate governance (New) | Financial | | | 25 | 17% | 16 |
| Cost optimisation of service delivery | Customer | 72 | 12 | 23 | 13% | 17 |
| Manage business change (New) | Internal | | | 23 | 13% | 17 |
| Compliance with internal policies | Internal | 47 | 17 | 17 | 20% | 19 |
| Ensure business continuity and disaster recovery (New) | Internal | | | 16 | 10% | 20 |

***Figure 4: Reviewed and prioritized list of Business Goals***

## 3.2. Reviewed and prioritized list of IT goals

As for the business goals, a similar reviewing and prioritising process has been executed for the IT goals. After round 1, four ‘candidate new goals’ were identified, from which three received enough ranking scores to end up in the reviewed list of IT goals (Figure 6) being #16 ‘Help innovate new business processes with the use of technology’, #22 ‘Ensure proper use of application functionality by providing end-user training and documentation’ and #23 ‘Drive commitment and support from executive manage-ment’. The latter one can certainly be marked as a best practice in IT governance in support of a better alignment between business and IT. The high level IT goal ‘Provide adequate flexibility for the business’ did not survive the second round.

Seven IT goals from the initial list did not make it in the final list of IT goals (see Figure 5). They were not identified by any of the experts or did receive very low scores and were only mentioned once during the ranking process. Most of these goals do belong to the operational BSC perspective. A possible explanation why some of these ‘operational oriented” goals are seen as less important, could be found in the fact that they are defined on a rather low level, as opposed to some other goals defined at a higher level, covering more responsibilities and as such perceived as more important. An example of such a ‘lower-level’ defined goal amongst the removed IT goals is ‘Reduce solution and service delivery defects and rework’ as opposed to the goals, ranked number #4 ‘Make sure that IT services are available as required’ and #6 ‘Ensure IT services and infrastructure can properly exist and recover from failures due to error, deliberate attack or disaster’, both covering similar objectives.

A vague or ambiguous definition may be another reason for goals to receive low rankings, with as example the removed IT goal 'Create IT agility'.

| IT Goals removed from the original list | BSC perspective |
|---|---|
| Define how business functional and control requirements are translated in effective and efficient automated solutions | Operational |
| Reduce solution and service delivery defects and rework | Operational |
| Optimise the use of information | Operational |
| Acquire and maintain an integrated and standardised IT infrastructure | Operational |
| Acquire and maintain integrated and standardised application systems | Operational |
| Create IT agility | Future |
| Ensure mutual satisfaction of third-party relationships | Operational |

***Figure 5: Removed IT goals***

The final reviewed and prioritised list of 24 IT goals for this first phase of the research is presented in Figure 6. Similarly as for the business goals, IT goals from the 'Corporate contribution' perspective were highly ranked in the prioritised list, followed by the 'User' oriented goals. IT goals under 'Operational' and 'Future' perspectives are classified as less important.

The three most important IT goals identified all belong to the corporate contribution perspective and are defined at a rather high level, covering a lot of responsibility areas. The number one ranked IT goal, #1 'Respond to business requirements in alignment with the business strategy' does confirm one of the top challenges and priorities for IT departments in general, being business/IT alignment. Other goals in the top 10 of this reviewed list do confirm other generic IT priorities, such as #2 'Ensure transparency and understanding of IT costs, benefits, strategy…' and #9 'Improve IT's cost efficiency…', supporting the challenge to make the IT department more transparent and work more cost effective. Other goals in the top 10 list do support, similarly as the business goals, directly or indirectly the sector-specific priorities, like for example #4 'Make sure IT services are available as required' and #5 'Ensure minimum impact in case of an IT disruption' or #8 'Ensure IT compliance with laws and regulations'.

Similar to the remark regarding the business goals, it appears that some of the IT goals are defined at rather low - IT process level while others are defined at a very high, close to the business, level. For example, the IT goal #1 'Respond to business requirements in alignment with the business strategy' is a rather global, 'umbrella' goal, close to the business goals, whereas the IT goal #22 'Ensure proper use of application functionality by providing end-user training and documentation' appears to be very closely related to the IT process defined in COBIT under control objective: 'Enable Operation and Use'. As was concluded for the business goals, fine-tuning of this list should be considered as well.

| | | Round 1 | | Round 2 | | |
|---|---|---|---|---|---|---|
| IT Goals | BSC Perspective | Score | Rank | %Mentioned | Score | Rank |
| Respond to business requirements in alignment with the business strategy | Corporate | 281 | 1 | 97% | 269 | 1 |
| Ensure transparency and understanding of IT cost, benefits, strategy, policies and service levels | Corporate | 137 | 3 | 83% | 174 | 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Respond to governance requirements in alignment with board direction | Corporate | 146 | 2 | 73% | 153 | 3 |
| Make sure that IT services are available as required | User | 125 | 4 | 73% | 145 | 4 |
| Ensure minimum business impact in the event of an IT service disruption or change | User | 112 | 5 | 70% | 137 | 5 |
| Ensure IT services and infrastructure can properly exist and recover from failures due to error, deliberate attack or disaster | Operational | 106 | 6 | 80% | 120 | 6 |
| Ensure critical and confidential information is withheld from those who should not have access to it | Operational | 105 | 7 | 80% | 96 | 7 |
| Ensure IT compliance with laws and regulations | Corporate | 98 | 8 | 70% | 86 | 8 |
| Improve IT's cost-efficiency and its contribution to business profitability | Corporate | 96 | 9 | 67% | 73 | 9 |
| Ensure the satisfaction of end users with service offerings and service levels | User | 78 | 10 | 77% | 66 | 10 |
| Maintain the integrity of information and processing infrastructure | Operational | 69 | 12 | 30% | 43 | 11 |
| Ensure automated business transactions and information exchanges can be trusted | Operational | 60 | 15 | 27% | 35 | 12 |
| Account for and protect all IT assets | Corporate | 53 | 17 | 23% | 34 | 13 |
| Seamlessly integrate applications and technology solutions into business processes | User | 73 | 11 | 17% | 32 | 14 |
| Acquire and maintain IT skills that respond to the IT strategy | Future | 62 | 14 | 20% | 28 | 15 |
| Help innovate new business processes with the use of technology (New) | Future | | | 13% | 26 | 16 |
| Establish clarity of business impact of risks to IT objectives and resources | Corporate | 52 | 19 | 20% | 25 | 17 |
| Ensure proper use and performance of the applications and technology solutions | User | 63 | 13 | 17% | 20 | 18 |
| Ensure that IT demonstrates cost-efficient service quality, continuous improvement and readiness for future change | Future | 60 | 15 | 13% | 17 | 19 |
| Deliver projects on time and on budget meeting quality standards | Operational | 39 | 21 | 7% | 13 | 20 |
| Protect the achievement of IT objectives | Corporate | 44 | 20 | 7% | 10 | 21 |
| Ensure proper use of application functionality by providing end-user training and documentation (New) | User | | | 7% | 9 | 22 |
| Drive commitment and support of executive management (New) | Corporate | | | 7% | 9 | 23 |
| Optimise the IT infrastructure, resources and capabilities | Operational | 53 | 17 | 10% | 7 | 24 |

***Figure 6: Reviewed and prioritized list of IT goals***

## 3.3. Linking IT Goals to Business Goals

*In the second phase of our research the relationship between the 10 most important business goals and 15 most important IT goals is examined. The results are shown in a matrix (Figure 7) indicating whether a specific IT goal is of primary (P), secondary (S) or no importance for the achievement of a specific business goal. Both lists of IT and business goals are sorted by importance based on the results of phase one.*

*Although the list of goals are not complete (only the most important goals are used in this matrix, see infra), it is already visually clear from this table that the most important business goals are supported by the most important IT goals: most of the primary links are found in the upper left part of the matrix. This may indicate that there is great deal of consistency between the prioritised lists of goals. This diagram also visualises that some goals are defined on a high-level while others are defined on a low level. For example the IT goal #1 '*Respond to business requirements in alignment with the business strategy*' does support all business goals in a primary or a secondary way, indicating its scope is broadly defined and covers multiple areas of IT's responsibility. Similarly the business goal #2 '*Manage business risks*' is supported by a majority of the IT goals. On the other hand, the business goal #9 '*Acquire and maintain skilled and motivated people*' and the IT goal #15 '*Acquire and maintain IT skills that respond to the IT strategy*' are defined in a more narrow manner in a specific area and seem to only relate to each other. Some IT goals, such as #12 '*Ensure automated business transactions and information exchanges can be trusted*' seems not to have a 'primary' relationship with any of the important business goals; but it may support other business goals, not in this list, such as*

*support for the business goal #12 '*Obtain reliable and useful information for strategic decision making*' may be a logical link.*

| IT Goals \ Business Goals | Increase revenue | Manage business risks | Expand Market share | Improve customer orientation and service | Return on investment | Service availability | Compliance with external laws and regulations | Offer competitive products and services | Acquire and maintain skilled and motivated people | Agility in responding to changing business requirement (time to market) |
|---|---|---|---|---|---|---|---|---|---|---|
| Respond to business requirements in alignment with the business strategy | **P** | S | **P** | S | S | S | S | **P** | S | **P** |
| Ensure transparency and understanding of IT cost, benefits, strategy, policies and service levels | S | S | | | **P** | | | S | | S |
| Respond to governance requirements in alignment with board direction | | S | S | | | | **P** | S | | |
| Make sure that IT services are available as required | S | S | S | **P** | S | **P** | | **P** | | S |
| Ensure minimum business impact in the event of an IT service disruption or change | S | **P** | | S | S | **P** | | S | | S |
| Ensure IT services and infrastructure can properly exist and recover from failures due to error, deliberate attack or disaster | S | **P** | S | S | | **P** | | S | | S |
| Ensure critical and confidential information is withheld from those who should not have access to it | | **P** | | S | | S | S | | | |
| Ensure IT compliance with laws and regulations | | **P** | | | | | **P** | | | |
| Improve IT's cost-efficiency and its contribution to business profitability | **P** | | | | **P** | | | S | | |
| Ensure the satisfaction of end users with service offerings and service levels | S | | S | **P** | S | S | | S | | |
| Maintain the integrity of information and processing infrastructure | | **P** | | | | S | | | | |
| Ensure automated business transactions and information exchanges can be trusted | | S | | S | | | | | | |
| Account for and protect all IT assets | | S | | | S | S | | | | |
| Seamlessly integrate applications and technology solutions into business processes | S | | S | S | | | | S | | S |
| Acquire and maintain IT skills that respond to the IT strategy | | | | | | | | | **P** | S |

**Figure 7: Linking IT goals to Business goals3.4. Prioritising IT processes**

Together with the linking exercise, the experts were asked to prioritise the list of 34 IT processes from COBIT 4.0.

Ranking the IT processes by importance was done, similarly to the scoring of the goals, by first scoring the IT process between 1 (not important) and 5 (very important) and then constructing a top 10 list of most important IT goals. Answers from 21 expert members have been processed and the results for the top 10 ranked IT processes are shown in Figure 8. Besides the IT processes #1 'Define a strategic IT plan' (81% mentioned) and #2 'Ensure continuous service' (71% mentioned), the ranking results are scattered over the different goals, implying that no 'strong' top ranking list was delivered.

Because this list is the result of only one feedback round for prioritising a rather long (34 processes) list, the level of consensus (W=0,22) is still weak (Schmidt, [12]). This list is only a first indication of a possible ordering of IT processes by importance. Ideally more rounds and additionally a similar linking exercise between IT goals and IT processes can be considered for a next research step.

| IT Processes | %Mentioned | Score | Rank |
|---|---|---|---|
| PO1 Define a strategic IT plan. | 81% | 140 | 1 |
| DS4 Ensure continuous service. | 71% | 91 | 2 |
| DS1 Define and manage service levels. | 67% | 76 | 3 |
| PO4 Define the IT processes, organisation and relationships. | 43% | 68 | 4 |
| PO5 Manage the IT investment. | 52% | 63 | 5 |
| ME4 Provide IT governance. | 43% | 60 | 6 |
| DS5 Ensure systems security. | 48% | 58 | 7 |
| AI6 Manage changes. | 52% | 55 | 8 |
| PO9 Assess and manage IT risks. | 38% | 50 | 9 |
| ME3 Ensure regulatory compliance. | 48% | 48 | 10 |

***Figure 8: First prioritized list of IT processes***

## 4. Conclusion

*The results presented in this paper provide a basis to build up a generic cascade from business goals to IT goals and IT processes in order to better understand their inter-relationships. This study is conducted in the financial and insurance sector, which was found to be a good starting point to initiate the construction of the cascade of goals. Elaboration to others sectors should support the further validation of the currently found cascade.*

*A strong list of top important business goals and IT goals was identified and an indication is given on how IT goals play a role in supporting business goals. Another observation captured during the research, addresses the level on which different goals in the list are defined. Some goals are defined on a rather high level, representing business and IT for the longer-term business and IT plans, while other goals are defined in a more specific domain, where they may represent shorter term objectives. One can also argue the overlap between different goals definitions and their scope. In reality, different companies, even in the same sector, may concentrate on a subset or a deduction of the presented list in order to include their specific accents. In this case, the prioritised lists and the linking matrix provide a guideline and a good starting point in one of the necessary steps a company should go through towards a good IT governance implementation.*

## 5. Indications for further research

Continuing an initial research project (Van Grembergen et al. [21]), the results of this research are considered a further step in the validation and prioritisation of generic business and IT goals, IT processes and their linkage. The Delphi method has proven to be effective and well suited for ranking a list of topics on one hand and linking two lists (IT goals and business goals in this case) on the other hand. The method can be fully deployed offline, using email as the main communication tool, which shortens the feedback rounds to two to three weeks. One of the drawbacks when using this method is that there is a significant drop-off rate after each round, resulting in a (too) small expert team after

some rounds. Starting with a larger team may be an option, however, there is a limit in requesting information and time from the experts during a limited number of questionnaire rounds. Another implication of a larger team is that reaching an acceptable consensus level may again require more time and feedback rounds.

Although the composition of the team with experts from the financial sector contained a good overall distribution, there were significantly more IT people represented (71%). Due to IT job level and job functions, we can assume the IT people in the expert team are knowledgeable on IT and business goals. But in order to obtain results equally validated by business and IT, one of the options for further research is to include an extra validation round, focusing at business representatives. Instead of using the indirect method via email-questionnaires, a face-to-face feedback round could be set up in order to guide the discussion and as such come to direct results.

As mentioned before, due to the smaller group of experts, additional rounds for prioritising the IT processes could not be established in this research. In order to complete the entire cascade (Figure 1), extra feedback rounds must be initiated and could be completed with a similar exercise on linking the IT processes to a set of IT goals.

Gaining more insight into a prioritised set of generic business goals, IT goals, IT processes, and their relationship, requires a replication of this research towards other sectors. Ideally, at least two more sectors should be examined in order to conclude if a workable generic list could be generated. Sector specific lists of business and IT goals could also be created, possible providing a higher degree of practical relevance. Replicating this research towards other sectors will also provide more data and creates the possibility to analyse the results per region, something which was not possible now.

As mentioned before, due to the large scope of the research (prioritizing IT goals, business goals, IT processes and linking IT/business goals and IT goals/IT processes) and different rounds needed for each step, the drop-off rate may become too high. Therefore, if the research is expanded to other sectors, consideration should be made to splitting the project over two parts: one expert team for prioritising IT goals, business goals and linking both; and one expert team prioritizing IT processes and linking them to IT goals.

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**About UAMS**

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**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 Brempt.

**Contact**

UAMS - ITAG Research Institute
Sint-Jacobsmarkt 9-13
B-2000 Antwerpen
Belgium
www.uams.be/itag

**Wim Van Grembergen, Ph.D.**

is a professor at the Information Systems Management Department of the University of Antwerp and an executive professor at the University of Antwerp Management School. He is academic director of the Information Technology and Alignment (ITAG) Research Institute and has conducted research in the areas of IT governance, value management and performance management. Over the past years, he has been involved in research and development activities of several COBIT products. He can be contacted at *wim.vangrembergen@ua.ac.be*.

**Steven De Haes, Ph.D.**

is responsible for the information systems management executive programs and research at the University of Antwerp Management School. He is managing director of the Information Technology and Alignment (ITAG) Research Institute and recently finalised a Ph.D. on IT governance and business/IT alignment. He has been involved in research and development activities of several COBIT products. He can be contacted at *steven.dehaes@ua.ac.be*.

Authors’ Note:
The results reported in this article are based on Ph.D. research executed by Steven De Haes under direction of Professor Wim Van Grembergen at the University of Antwerp Management School.

**Hilde Van Brempt**

is senior researcher at the University of Antwerp Management School (UAMS) since September 2005. She’s conducting research for the ITAG Research Institute and for ISACA, more specifically on business goals, IT goals, IT processes and their relationship. Hilde Van Brempt has seventeen years of enterprise business experience, holding different consulting, marketing and management positions in international high-technology companies.