# Assessment of Strategic Alignment Platform for Enterprise Processes Evaluation as a Management Tool

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*Abstract—*

Strategic alignment between IT and business functions is crucial for organizations to achieve their objectives. This paper presents an interim report on a project focusing on automating strategic alignment. The proposed solution involves building business objective/goal models, defining the correlation between service designs and business objectives, and developing automated support for analyzing this correlation. The tool, ServAlign, is introduced as a platform for modeling enterprise architecture and evaluating strategic service alignment. It aims to improve the structure of business processes and can be used for strategic alignment evaluation and IS audit. The paper emphasizes the continuous evaluation and improvement of IT and business alignment. This paper introduces "ServAlign", a tool designed to automate strategic alignment in organizations by modeling enterprise architecture. Information Systems (IS), which consist of data and people technologies, play a crucial role in supporting decision-making processes. The application of IS can help measure the degree of consistency between business strategies and technologies. ServAlign uses internal enterprise architecture metrics as input parameters to evaluate organizational strategies. It can enhance the structure of business processes, a process that can be referred to as process reengineering or process mining. The tool is used to evaluate strategic alignment, which can also serve as an audit for the IS. The platform is applied across different organizations and the results are presented in the system evaluation. The alignment of Information Technology (IT) and business is a cycle that requires continuous evaluation and improvement. This paper emphasizes the importance of strategic alignment in ensuring that the IT and business functions of an organization are geared toward achieving its business objectives.

Keywords: strategic alignment, service transition, product-service system, strategy, strategic objective, strategy map, Business Objectives, Business Services, Service Orientation, Goal Modelling.

## I. INTRODUCTION

The importance of documenting the objective of a requirement for a software or system is as crucial as the actual requirements elicitation process. This concept, first popularized by Yu under the term "early-phase requirements engineering," has seen significant growth in various contexts [1]. The growth of early-phase requirements engineering techniques and technologies in many contexts was then witnessed by us. The convergence of businesses, organizations, and information systems is now the focus of the two developing fields of Service-oriented computing (SOC) and Enterprise Architecture (EA). These domains also fall within the purported early-phase requirements theory.

Business processes and IT alignment within an enterprise or organization are accomplished through the EA [2]. EA is a principle used in "an instead of "a state," use "a business." Ministries have discovered that they are dispersed in how they provide public services to citizens and have used EA to establish their supporting strategies and plans in support of government solutions [3-4]. While certain EA frameworks advocate for integration issues, they can't support widespread government integration. Although certain models encourage extensive government integration, state bureaucracy and other obstacles prevent its implementation in all nations [5]. This study suggests a government enterprise architecture for Indonesia as a comprehensive national strategy and guiding plans in attaining the government's business objectives and encouraging ministry collaboration to achieve the organization's objective [6].

Research interests are growing in how high-level strategic visions of organizations are represented and how they affect both business aspects and decision-making processes [7-8]. The current focus of this field's study is on the specification of goals and objectives in connection to other artifacts like actors, business processes, and resources. A new method for expressing organizational objectives and how high-level business services may be used to achieve them, and vice versa. Additionally, there is a need to choose the best services to achieve goals and understand how to preserve these connections in the face of shifting corporate goals.

IT solutions play a great role in improving businesses [9]. Many researchers and organizations have applied Strategic alignment (SA) for different organizations [10]. The main objective of those studies was to employ IS in the firm's strategy to enhance the organization and make better decisions [11]. The misalignment between technology and business reduced the quality of the provided services, which impacted badly on the business. EA addresses two problems: systems complexity and poor strategic alignment [12-13]. The EA is the best way of representing information as a model illustrating the links between strategy, business, and IS [14].

This article introduces a toolkit called ServAlign that facilitates the modeling and fine-tuning of objectives, the representation of business services, the construction and maintenance of relationships for realization, and the selection of the best services to achieve goals in a semi-automated manner. The ServAlign tool can automate the process of strategic alignment, as demonstrated in this paper. It is based on a set of metrics collected from several researchers from enterprises, classified according to the links between the layered structures proposed by enterprise architecture. The tool improves the SA maturity level by analyzing the structure of the enterprise architecture and suggesting efforts to reach a better level.

The article follows the following structure. The second section is to give a literature review of EA and SA in enterprises; the third section introduces the proposed tool and provides the main features. Section 4 shows the evaluation method of the proposed platform. conclusion and future work are presented in Section 5.

## II. Related Work

In the field of early-phase requirements engineering concerning strategy modeling. Goal-oriented Requirement Language (GRL)2 supports goal-oriented reasoning by establishing correspondences between intentional elements (i.e. objective, task, resource, belief) and non-intentional elements - which may be imported from an external model, in a scenario. Lamsweerde did significant work on the specification of and reasoning over goals [15], [16]. Tropos is an agent-oriented software development method based on the I* framework. The software system to be developed is analyzed concerning its intended environment including stakeholders and goals.

In this initial requirement phase, two models are created, the actor-dependency model and the goal-plan model [17]. The Light Switch Approach seeks to define an enterprise system's initial needs [18], taking into account the distinction between achievement objectives and maintenance goals, as well as the function of beliefs and norms in an enterprise system. The e3 Family presents a framework for modeling three views of a company, namely the IT perspective, the business strategy perspective, and the value generation perspective [19].

Aligning an organization's strategy with functional features is the goal of the InStAl technique [20]. The strategy is laid out in terms of strategic objectives and goals with the stakeholders' shared vision for the firm. The strategic alignment of an organization's IT and business functions is eventually a topic of research. Existing research in this area makes some attempts to define the idea of strategy modeling. The organization's strategy, however, is not properly modeled and thought out[21]. The same shortcomings may be observed in commercial frameworks dedicated to business modeling[22].

EA is a concept to align business and IT to achieve the organization's targets by defining four layers of Business, Information, Application, and Infrastructure architectures [23]. EA also enables resource sharing across ministries and reduces the cost of IT and business operations by identifying duplications and opportunities for reuse and enabling the development of shared processes and the delivery of seamless services [24].

EA acts as the meta-discipline that provides mechanisms to holistically understand the enterprise in question and link and optimize disparate activities and approaches into a single unified coherent program [25], [26]. EA could help with coping with legacy complexity and cost, reintegrating the supply chain, integrating public services, enhancing channel capabilities, or even delivering better customer services [27]. EA also supports interoperability in the e-government system [28-29].

Using the EA paradigm to develop an Enterprise Architecture can assist in managing complexity, managing the IT portfolio, delivering the roadmap for changes, supporting system development, supporting business and IT budget prioritization, etc. It also manages different issues in any organization like legacy transformation, business changes, infrastructure renewal, application systems renewal, and business/ IT alignment [30].

Aligning with the main concepts of alignment with business objectives and process automation, many tools were developed to support organizations. MS Motion is a 4-phase methodology for defining business architecture from Microsot[31]. Strategic components are described in the first phase in terms of project objectives. Business modeling is captured in business capabilities, which can be represented at three levels of granularity. In terms of strategy modeling, MS Motion does not define a specific modeling language or templates for capturing project objectives.

An approach of modeling used by IBM Business Consulting Services is called the IBM Component Business Model. As implied by the name, the emphasis is on business-related elements. This method's initial phase discusses the idea of business strategy, but it offers no particular methodology for strategy modeling. A modeling tool for creating a model repository that captures multiple enterprise characteristics is IBM Rational System Architect. To capture strategies and goals, this tool does not prescribe any specific modeling language[32].

To close the gap between strategy and implementation, SAP BusinessObjects Strategy Management was created [33]. It is done primarily to assess risk, execute strategies, and align resources to maximize efficiency and profitability. It does not offer a specific modeling language for business strategies, like other commercial frameworks. The tools are just diagrammatic widgets and do not offer any kind of complex reasoning, in addition to the absence of a meaningful strategy modeling language.

All of those tools offer an overly generalized understanding of strategy, but there is no consistent way to articulate (i.e., write down, represent, or document) a strategy and how it relates to high-level business services. To deal with these problems, we developed a toolkit called ServAlign. The module of ServAlign can facilitate strategy and improve the process. It also demonstrates how we created the ServAlign engine, which permits the creation of strategic service correlations in a semi-automatic way.

## III. Business objectives and services modeling

Automating the alignment of a set of services with a set of strategies requires a language for modeling organizational strategy. To automate the alignment of strategies with services, Strategy Modelling Language (SML)[13] has been used along with the integration of machine processing. Defining High-level business service modeling language and incorporating machinery that enables the assessment of alignment while supporting dynamic realignment along with changing business context is one of the key features of the tool we implemented named ServAlign [1]

### *A. Modeling Business Objective*

Strategy Modelling Language (SML) [14] is used in the proposed solution for establishing the formal basis for representing enterprise strategy that is evaluated over a range of real-life organizational strategy documents. SML facilitates a valuable modeling framework that is used in the ServAlign framework to describe the strategies as business objective models considered as three strategy statements mentioned below:

- Goals: A condition subjected to achievement by the organization describes goals. Goals are submitted based on a Boolean evaluation to determine precisely about practicality and achievability of goals.
- Objective Function: A construct designed to be used in operational research techniques for defining preferences based on the optimization of problems and optimality of the desired solution. Objective functions are articulated as maximize or minimize functions.

- Plan: A set of goals together constitutes a plan connected with a set of linear sequencing and coordinated constraints.

Let's consider a use case, the corporate strategy to be the market leader in mobile handsets is a "Goal". The strategy is to maximize customer satisfaction as an "Objective function".

Our strategy is to gain market acceptability in Spain and further position ourselves in the Swedish market, then using the established credibility to enter the UK market is a steps goal i.e., "Plan".

*B. Business Objective Decomposition*

The proposed platform requires that the enterprise align the enterprise goals with the service design. So to express that in the proposed system the strategies can be set ag the organization's goals and the plan as a functional strategy. The primary goal decomposition methodology that we have leveraged in this paper is KAOS [15], which provides a language and method for goal-driven requirements elaboration. ,o refine business objectives to express them in a vocabulary that potentially can match with represented service.

- Goal refinement:

Following the KAOS (Knowledge Acquisition in Automated Specification) framework [4], [2] is defined i.e. A goal G with sub-goals ($g1, g2 ... gn$) is valid if and only if the below-given conditions are met ( we assume here that a set of goals refers to the conjunction of its elements – AND refinement-):

$$(1) g1 \wedge g2 \wedge \ldots \wedge gn \not\models \bot \quad \text{consistency} \quad (1)$$

$$(2) g1 \wedge g2 \wedge \ldots \wedge gn \models G \quad \text{entailment} \quad (2)$$

In other words, the set of sub-goals for a goal will achieve the goal (entailment); and always the result is correct (consistency).

- Objective function refinement:

objective function will be presented as a set of pairs $\{S1, S2, S2, S3, \ldots\}$ where each pair of the group $S1, S2$ is a set of services (in this instance, that the set $S1$ is preferred to the set $S2$. A notion of consistency of a set of objective functions will be required. Objective functions $O1$ and $O2$ are inconsistent if and only if there exists a pair of solutions $S1$ and $S2$ such that $S1$ is preferred over $S2$ by $O1$ and the reverse holds under $O2$. An objective function refinement $F$ into a set of objective functions $\{f1, f2, \ldots, fn\}$ is valid if and only if: (1) For any $s1,s2 \in F$, there does not exist any $s2,s1 \in fi$ for any $i$. (2) $F \subseteq f1 \cup f2 \cup ...fn$. (3) There does not exist any $F' \subset \{f1,f2,..., fn\}$ such that $F \subseteq \cup F'$.

If the set $\{f1,f2,...,fn\}$ is consistent. That could mean the refinement of an objective function does not make statements of preference that contradict the parent objective function. The other condition states that all of the preference statements implicit in the parent objective function must also be made by the combination of the refined objective functions (i.e., no statement of preference goes missing as a consequence of refinement). The third condition requires that the refinement is non-redundant, i.e., no objective function is included in the refinement that does not contribute to ensuring that all of the preference statements in the parent objective function are included in the refinement. Finally, we require the refined set of objective functions to be consistent [13].

- Plan refinement:

Plan refinement requires the enhancement of the stated goals besides the subgoals, so these sub-goals are also sequenced in a good alignment and the cumulative specified order leads to the parent goal being achieved [2]. The refinement of a plan is $P = <g1,g2,.,gn>$to a sequence of sub-plans$<<g1,g2,...,gp >, <g1,g2,...,g2 >,...,<gn1,gn2,...,gnr >>$is valid if and only if: For each $gi \in$P,$\{gi1,gi2,...,gis\}$. is a valid (goal) refinement of $gi$.

The ServAlign toolkit offers three approaches to make use of these semantic limits on legitimate strategy improvements. First, it offers a way to automatically produce strategy improvements that are accurate in light of these semantics. Second, it offers a way to validate user-generated improvements. After refinement, the business objective modeling is represented by reusing i* pictogram of the hard goal for our functional goal under consideration while introducing additional pictograms for other types of strategy. Visual notations for business plan and optimization objectives [5], [6],[7] (maximization or minimization) with business goals are shown in Table I.

TABLE I

VISUAL NOTATIONS

| Symbol | Name |
|---|---|
|  | Plan |
|  | Goal |
|  | Maximization |
|  | Minimization |

### *C. Services Modeling*

Business service modeling is defined as business services that are required to be represented in terms of formal postconditions and QoS constraints [8]. An expressive and concise business service representation language can be utilized when services are designed to be more explanatory (We do not consider the sub-structure of services or control flow relations between them).

## IV. SERVALIGN TOOL PRESENTATION

fig1 is a graphical screenshot of our proposed ServAlign tool that is particularly designed through C# for the back end and react for the front end. The illustration shown in the screenshot depicts a tree view relevant to the entire strategy decomposition hierarchy. The Eclipse perspective to the right illustrates the entire service and the status of each service. The window in the middle visualizes the alignment between the business objectives, services, resources, and processes. The proposed tool is handy to use and can be used by decision makers as presented in the following figures from 2-6.

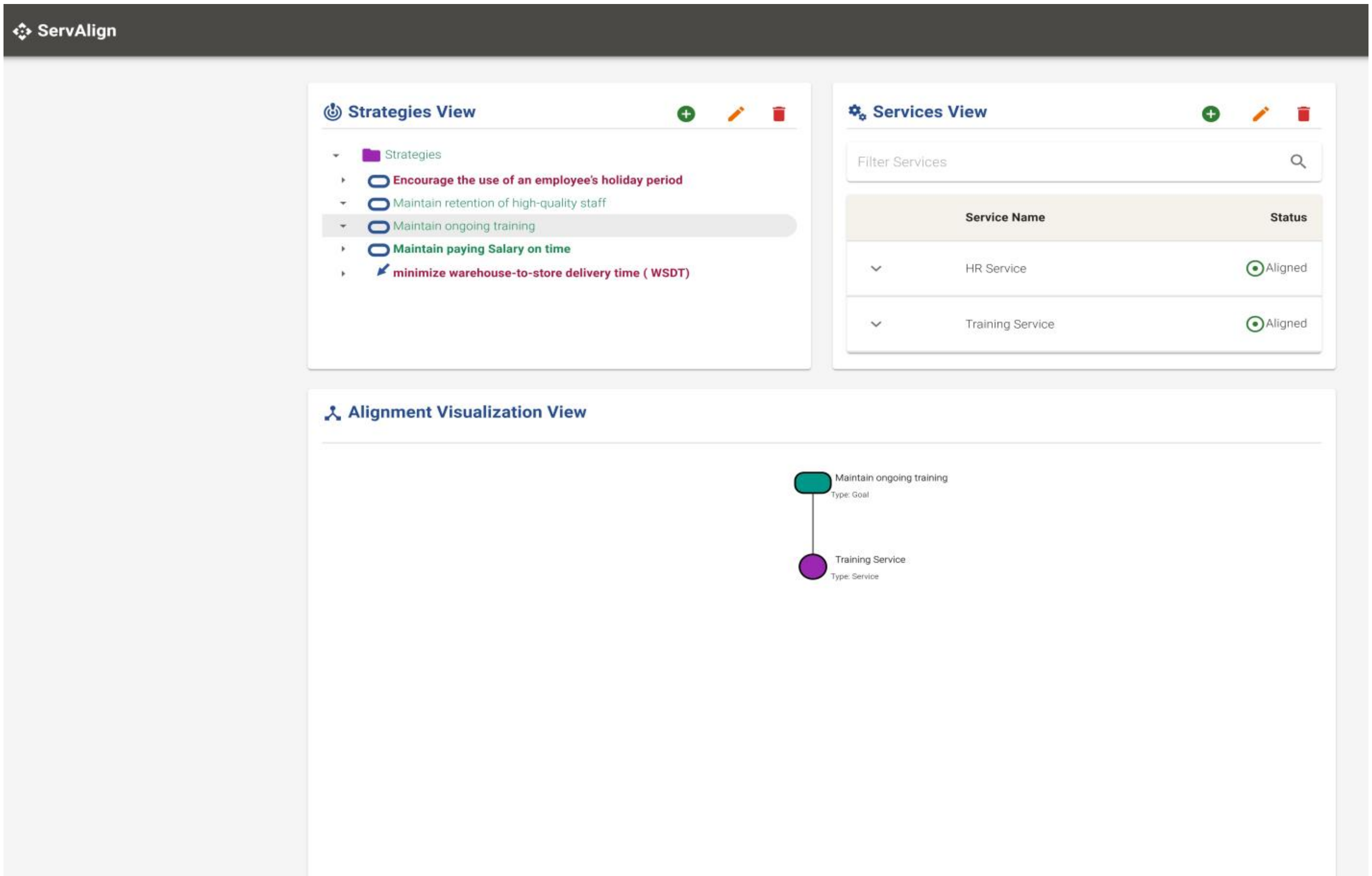


Fig. 1. ServAlign Tool.

## V. Experimental Results

Strategic service alignment can be realized through strategies at the most refined level with services (We assume that goal g and Postconds of services are written in logical format). This realization is established using the following machinery: Goal realization: A set of services i.e. $s1, s2, \ldots sn$ realizes a goal $g$ under consideration is set to be minimally inclusive of a set of services such that:

$$Postcond(s1) \wedge Postcond(s2) \wedge \ldots \wedge Postcond(sn) \models g$$

Where the $Postcond(s)$ is considered as the post-condition of service $s$.

All *Postconds* are persistent and consistent, which means that every time an action finishes, the result is always the same, and it does not change under any circumstance. To ensure the execution results of all *Postconds* are always true, *Postconds* must be executed in sequence represented as:

Objective function realization: a group of services S achieves an objective function f if and only if the optimal realization of S relative to f is contained in S for each strategic antecedent Str of a service that is not an objective function or constraint.

Plan execution: A set of services realizes a plan if and only if it is the smallest set of services (i.e., n subsets that achieve the same condition) that realizes each of its component goals.

*A. Automation of Alignment Between Services and Strategies*

To implement a method that can test the alignment of a set of post-conditioned services with the goals using standard constraint-solving techniques or tools, we have incorporated the unsatisfiability theorem [9],[10]. One of the promising features of this result is that we can predict and analyze the logical entailment by just checking for unsatisfiability conditions:

$$Postcond(s) \models g \text{ iff }, Postcond(s) \cup \{\neg g\} \models \bot$$

fig2 illustrates a visual representation of the refinement process of goal G (AND refined) with sub-goals g1, g2, and g3 in such a way that g1 refined g4, g5, up to sub-goal g6 (if business objective model and service model expressed in logic format (AND/OR)). The refinement process continues until the goal model is refined on the same instance of postconditions. The goal model G depicted in fig2 is expressed as:

$$g1 \wedge g2 \wedge g3 \models G$$

Logically, the post-condition of service to satisfy a goal can be translated to the following formula:

$$Postcond0 \wedge Postcond1 \models g4 \; postcond2 \models g5$$

$$Postcond3 \wedge Postcond4 \models g6$$

$$Postcond6 \wedge Postcond7 \models g3 \; g4 \wedge g5 \models g1 \; g6 \models g2 \; g1 \wedge g2 \wedge g3 \models G$$

Assuming that the services model with post-condition of each service is: service *S1 = Postcond0, Postcond1*; service *S2 = Postcond2, Postcond3, Postcond6*; service *S3 = Postcond4, Postcond5, Postcond7*. To check the goal model satisfaction, we Apply the formula:

$$Postcond(s1) \wedge Postcond(s2) \wedge ... \wedge Postcond(sn) \cup \{\neg g\} \models \bot$$

System Evaluation:

Let's consider a goal in strategy model *G* in which maintaining a high-quality staff is considered a refined goal using AND and is further refined into two sub-goals *g*1 and *g*2. *g*1 maintains ongoing training and *g*2 maintains paying salary on time as illustrated in Fig We will refine the sub-goals until we declare that the salary payment process is needed to achieve g1 and the training process is needed to achieve *g*2. To accomplish it, the service model considers two conditions i.e. training service with postcondition: training process and HR service with post-condition: salary payment process, holiday request process.

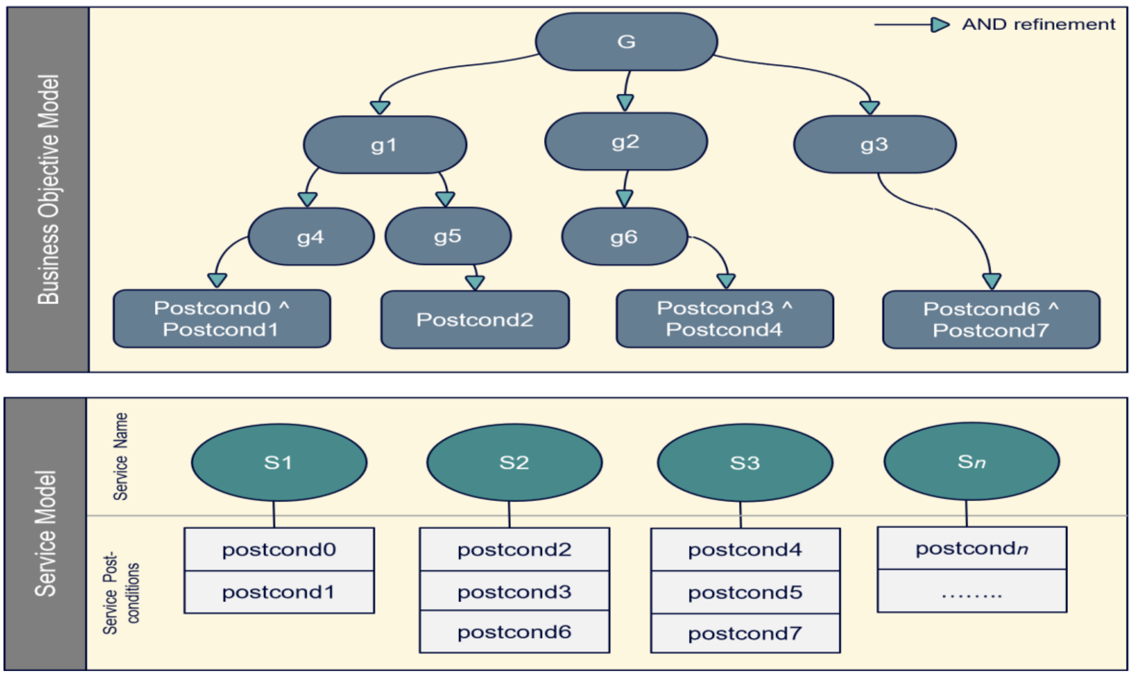


Fig. 2. Refinement process of goal G (AND-Refined)

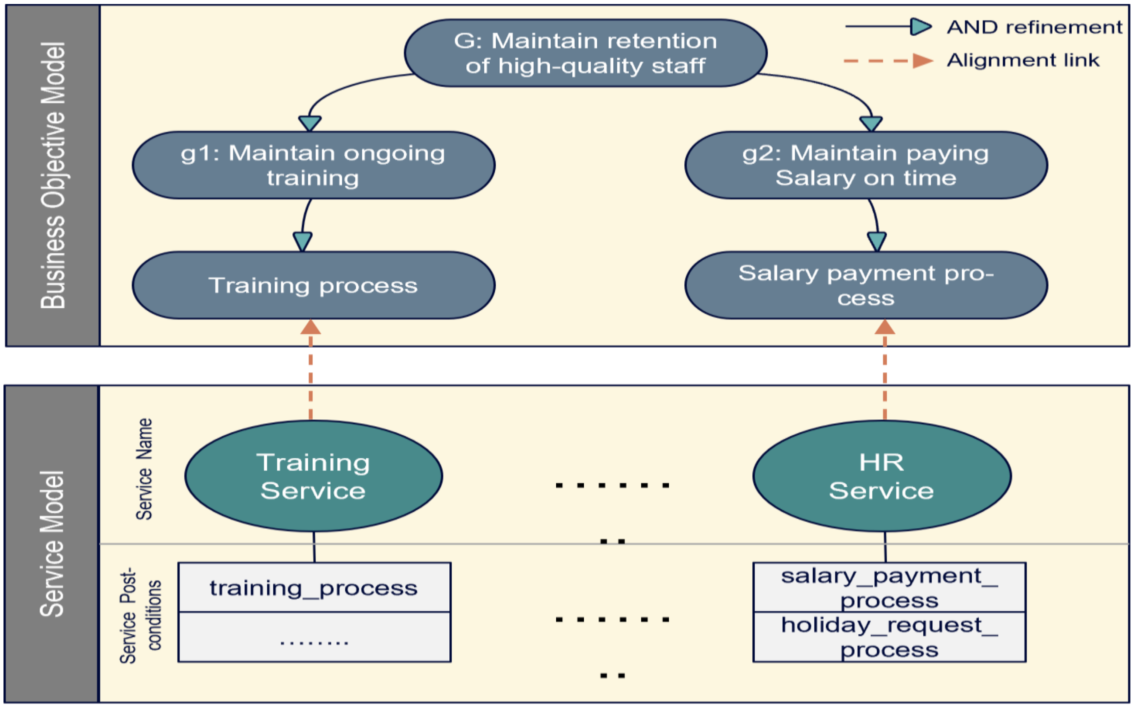


Fig. 3. Goal satisfaction process

Integrating our method using the CP-SAT solver [2] provided the results as unsatisfactory indicating that the post-condition of the services highlighted a goal G that is acting as a link to the services through an automated way. Moreover, it also enables analysis of the alignment with a clear view of services, resources, and capabilities. Also, they assist in viewing the gap between the current performance and the desired performance. Desired performance is the one that is mentioned in the mission, vision, and objectives, whereas current performance is the ongoing present state. In other words, strategy gaps are discontinuity among preferred goals and real goals of the organization.

[NEED better conclusion for this part]

*B. Services Optimization of Objective Functions*

To opt for better choices for selected services given in a service catalog to identify organizational strategies, we have used a generic algorithm also known as multi-objective optimization. This choice of algorithm enables us to find Pareto front optimal solution to make the best choices while selecting services to realize

[2] CP-SAT Solver OR-Tools. https://developers.google.com/optimization/cp/ cp solver

organizational strategies. This algorithm produces a subset of points that are Pareto optimal. This factor also indicates that these subsets of points cannot be dominated by any other points given in a dataset. Algorithmically proposing it as:

In a dataset S with N number of point x and each x has numeric attributes n then it can be represented as a dimensional vector such that: (x[1], x[2], ..., x[i]) ∈ R Where x [i] is the i-th attribute of a dataset. In a given two points (x[1], x[2], ..., x[i]) and y = (y [1], y [2] . . . y [i]) such that points x dominates y if x[i] < y[i] for at least one attribute and x[i] ≤ y [i] while for other (1 ≤ i ≤ n).

The above-mentioned method is followed by skyline techniques [11]. Precisely, the skyline technique is: in two-dimensional points x and y, where N is a positive integer and x dominate (Pareto dominate) y such that x <y, and if x is better than or equal to y considering all dimensions and x is better than y on at least one of the given d dimensions. Given a set P of d-dimensional points and a point x in P, x is considered to be a skyline point in P only if x is not dominated by any other points in P resultantly.

The Skyline technique compared each point with all other points. If it is not nominated by any other, this point is a skyline point. Recursively it runs this step until all points have been checked. The Skyline algorithm is executed in polynomial time. If the initial number of solutions of set P is n, and each has two dimensions (x and y), the algorithm runs in $O(2n^2)$.

On the other side, our implemented algorithm (Algorithm 1) reduces the size of the set P at each iteration. Only the first iteration has a complexity of $O(2n)$. The next iteration has a complexity of $O(|E|)$, where $|E|$ decreases after each iteration. Regarding the considered example ($n$ = 5), the complexities of the iterations were $2n, 2(n-2), 2(n-3)$, respectively. Also, it has run for $(n-2)$ iterations only, not $n$ as in the case of the skyline algorithm.

Thus, the algorithm runs the main loop (lines 16:29) for $(n-m)$ iterations, where $m$ is the summation of the number of dominant solutions removed until reaching the optimal one. This reduces the running time of the algorithm as the search space is reduced by filtering out these solutions.

Algorithm 1 Multi-objective Pareto Efficient Solutions.

Input: set of $x$ values,**X**; set of $y$ values,**Y**;

set of optimization senses (for $X$ and $Y$ ), **S**; Output: Pareto set, **P**; for each *sense s of the set*

*S* do

```
    the data ← set of values corresponds to s
    if s is maximization data ← −1 × data end
end
initialize P
for i = 1 : |X|(or |Y |) initialize solution solution.id ← i solution.x ← X[i]
   solution.y ← Y[i] add solution to P
end
initialize i
while |P |>1
    i ← i+1
    solution_i ← solution of P with id=i
    if solution_i ≠ ∅
        initialize a set of efficient points, E
        for each solution_j of P and solution_j ≠ solution_i
                                                  if solution_j.x<solution_i.x or solution_j.y<solution_i.y
            add solution_j to E end
        end add solution_i to E
        P ← E
    end
end return P
```

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System Evaluation:

let's consider an example for better analysis, suppose we have objective functions with the following parameters:

- Minimize the warehouse-to-store delivery time (WSDT)
  - Maximize the number of warehouses per metropolitan Center (WMC)
  - Minimize trucking time between warehouses (TTW)

We formalize some of the objective functions in the example in the following manner: OO1: min WSDT, OO11: max WMC, OO12: min TTW. Assume that we have 5 logistics services on offer, S1, S2, S3, S4 and S5, with following QoS characteristics (TableII):

Based on the Pseudocode described in Algorithm 1 and the example given above, the input to Algorithm 1 would be *X*=[2,1,4,4,6], *Y*=[72,76,56,80,30], and *S*=[maximization, minimization]. The algorithm starts with a check of every sense of optimization in *S*. Since the one associated with *X* is maximization, all values of *X* are multiplied by -1. Then *X* is transformed to *X*=[-2,-1,-4,-4,- 6]. While the sense associated with *Y* is minimization, nothing is done. Then, the algorithm initializes *P* as an empty set. To fill the set *P*, the algorithm creates each solution, where each solution has a unique id, a value of *x*, where *x* ∈ *X,* and a value of y, where *y* ∈*Y*. Then add each solution to P. Thus, *P*=[(1,-2,72),(2,-1,76),(3,-4,56),(4,4,80),(5,-6,30)], where each solution is represented by (*solution.id,solution.x,solution.y*).

TABLE II

VISUAL NOTATIONS

| Services | QoS | |
|---|---|---|
| | WMC | TTW |
| S1 | 2 | 72 |
| S2 | 1 | 76 |
| S3 | 4 | 56 |
| S4 | 4 | 80 |
| S5 | 6 | 30 |

Before beginning the main loop, the algorithm initializes *i* with zero value. It is repeated until the number of solutions of *P* equals one. At each iteration, *i* is increased by one, and the solution with the corresponding id from *P* is considered. At iteration 1, *solution 1* (with *id = 1*) is considered i.e., *solution 1* =(1,-2,72). Then, the algorithm Iterates all the solutions in *P* except *solution 1*. If a solution has an *x* or *y* value lower than the considered solution, this solution is added to set *E*. Therefore, *E* = [(3,-4,56),(5,-6,30)]. S*olution 3* (3,-4,56) and *solution 4* (4,-6,30) both have lower values of *x* and *y*, (for each solution if it has either a lower value of *x* or *y*, it will be added to the set *E*). *Solution 2* (2,-1,76) and *solution 4* (4,-4,80) were not added as each one of them has neither an *x* value nor *y* value that is lower than those of *solution 1*. After that, the algorithm adds *solution 1* to the set *E* and then puts *E* as *P* and goes to iteration 2 (as the number of elements of *P* is three).

Iteration 2 is not completed since the solution with *id = 2* has not been added to the set *P* (set *E*) in iteration 1. Then Iteration 3 will go in the same way as Iteration 1. Since *solution 3*=(3,-4,56), the set *E*=(3,-4,56),(5,-6,30)]. At the end of iteration 3, the algorithm puts *E* as *P* and goes to iteration

4.

Iteration 4 is not completed, as in iteration 2 (as the solution with *id = 4* does not exist in *P*). In iteration 5, the set *E* would be *E*=[(5,-6,30)]. Solution (3,-4,56) is not added as either its *x* value or *y* value is lower than those of *solution 5*. After that, the algorithm puts E as P and terminates the main loops (as the number of elements of *P* is 1).

Finally, the algorithm returns the solution in *P* as the optimal one (5,-6,30), corresponding to service S5 as the Pareto optimal point which means S5 can achieve the OO11 and OO12 and by achieving these two objective functions the main objective function OO1 will achieve based on AND refinement.

## Discussion

The main challenges of applying strategic alignment are misalignment and non-conformance to the targets of the organizations. The article proposed a goal-oriented process variability mining and categorization approach. This bottom-up approach enables organizations to study the depth and breadth of goal adherence in their organizations. The article also presented a promising platform for organizations to help them with assessing their alignment with their goals. In our future work, we would like to study the impact of any proposed change in the goal decomposition model on process execution based on the PIGA model and focus on goal augmentation based on instance variants.

## Conclusions

Organizations always try to analyze the daily business processes with their targets to find the required reengineering of the processes to refine the business. The realization of process value and the process mining science guided the organization to adapt the process execution. This paper tackles the issues of modeling and refinement of business objectives and correlating these to business services. The main contribution of this paper is a user-interactive routine for objective refinement and objective service correlations. Correlations between services and objectives are established by assessing the alignment between these objectives and services using goal satisfaction and the optimal choice of services that could realize strategies. We also report on a toolkit called ServAlign that implements these techniques. The future work is to improve the processes of the organization in real time by adding insights into the decision-making. So the system can learn from the historical performance based on the business processes.

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