Hệ thống CRM cho doanh nghiệp bất động sản Tuan321

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# Giới thiệu

Công ty bất động sản Tuan321 thực hiện các hoạt động kinh doanh nhà ở, văn phòng:

* Xây dựng, mua bán, chuyển nhượng
* Cho thuê căn hộ, nhà ở, văn phòng.
* Thực hiện dịch vụ môi giới bất động sản.
* Vận hành các sản phẩm bất động sản.

Công ty quy mô 80 nhân viên, 1000 cộng tác viên bán hàng (sale). Để tăng tính cạnh tranh trên thị trường bất động sản bằng cách tìm hiểu thêm về nhu cầu và hành vi của khách hàng từ đó tạo ra các chiến dịch marketing, sale đúng đối tượng khách hàng, công ty Tuan321 mong muốn triển khai hệ thống CRM .

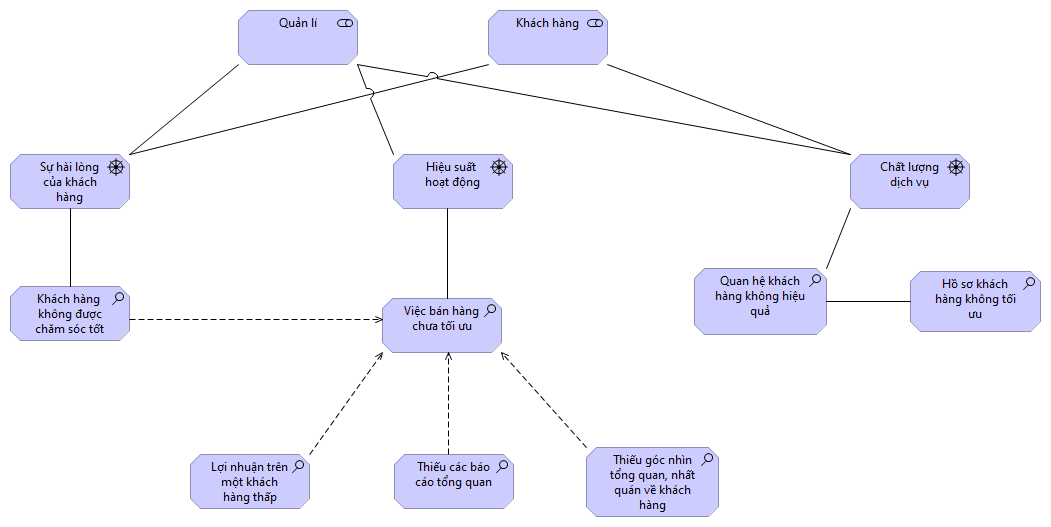
Hệ thống CRM mới sẽ giải quyết các vấn đề chính sau:

* **Kết nối tiếp cận khách hàng:** Tìm kiếm, phân loại khách hàng, tiếp thị tự động đến khách hàng.
* **Quản lí hoạt động mua hàng:** Quản lí thông tin các sản phẩm, dịch vụ, bảng giá, đơn hàng.
* **Chăm sóc khách hàng:** Lưu trữ các câu hỏi thường gặp, quản lí các khiếu nại, vụ việc phát sinh
* **Lưu trữ thông tin:** Thông tin bao gồm lịch sử thanh toán, lịch sử giao dịch, thông tin cá nhân của khách hàng , t hông tin bất động sản, trạng thái giao dịch, lịch làm việc, doanh số nhân viên, cộng tác viên phải được lưu trữ và biểu diễn một cách hợp lí.
* **Hoạch định chiến lược kinh doanh, tiếp thị:** Đưa ra các báo cáo về doanh thu so sánh trên từng khu vực, báo cáo tài chính từ đó đưa ra các chiến lược kinh doanh hợp lí.

Để áp dụng hệ thống CRM, ban giám đốc công ty Tuan321 quyết định phát triển kiến trúc doanh nghiệp bằng khung Togaf v9.

# Pha khởi đầu

# Pha khởi đầu phân tích các vấn đề hiện tại mà công ty Tuan321 gặp phải từ đó đưa ra kiến trúc doanh nghiệp phù hợp để cải thiện vấn đề. Cũng tại phần này, chúng tôi cũng đưa ra tầm nhìn của hệ thống CRM tại công ty Tuan321.



Hình 1. Thể hiện các thách thức mà Tuan321 đang đổi mặt

Các vấn đề chính mà công ty Tuan321 gặp phải liên quan đến sự hài lòng của khách hàng, hiệu suất hoạt động và chất lượng của các dịch vụ mà công ty cung cấp.

Hiện tại, các nghiệp vụ liên quan đến bán hàng, khách hàng công ty đang thực hiện một cách thủ công. Các cộng tác viên tạo các báo thông qua các phần mềm trang tính gây thiếu hiệu quả dẫn đén lợi nhuận/khách hàng thấp. Cơ sở dữ liệu và định dạng dữ liệu tại các phòng ban là rời rạc, chưa tích hợp dẫn đến thiếu góc nhìn tổng quan và nhất quán về khách hàng để thực hiện các chiến dịch marketing tự động như Email hay SMS marketing.

Chất lượng dịch vụ cũng là một vấn đề, do thiếu kênh tương tác với khách hàng đang sử dụng sản phẩm của mình, công ty không thể lắng nghe được các ý kiến của khách hàng của mình từ đó nâng cao chất lượng.

Cũng do thiếu thông tin về khách hàng, không thể chăm sóc khách hàng theo những thuộc tính khác nhau của họ dấn đến sự hài lòng của khách hàng giảm.

# Pha B: Kiến trúc nghiệp vụ

## Organization Structure

## - Tổ chức doanh nghiệp được chia thành các cấp phong ban bao gồm:

## Phòng liên lạc: Thực hiện chức năng là kênh giao tiếp với khách hàng, cung cấp các dịch vụ cho khách hàng

## Phòng xử lý xây dựng, mua bán, chuyển nhượng: Phòng ban thực hiện các nghiệp vụ về xây dựng, mua bán, chuyển nhượng

## Phòng xử lý cho thuê: căn hộ, nhà ở, văn phòng: Phòng ban thực hiện các nghiệp vụ về cho thuê: căn hộ, nhà ở, văn phòng

## Phòng thực hiện dịch vụ môi giới bất động sản: Phòng ban thực hiện các nghiệp vụ về môi giới bất động sản

## Phòng vận hành các sản phẩm bất động sản: Phòng ban thực hiện các nghiệp vụ về vận hành các sản phẩm bất động sản mà  doanh nghiệp cung cấp

## Trung tâm xử lý và lưu trữ tài liệu: Xử lý các nghiệp vụ như quản lý giấy tờ, lưu trữ thông tin, giấy tờ của doanh nghiệp

## Phòng điều phối hoạt động: Thực hiện các nghiệp vụ để điều phối hoạt động giữa các phòng ban trong doanh nghiệp

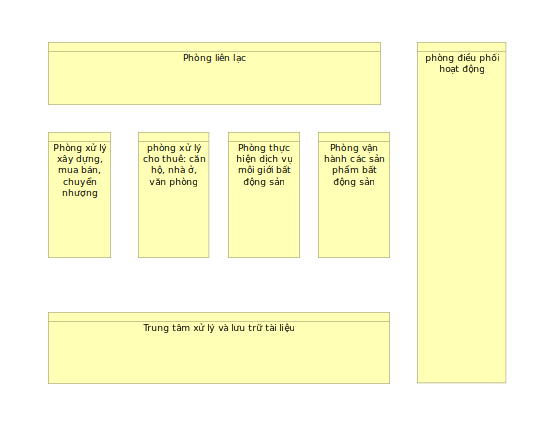
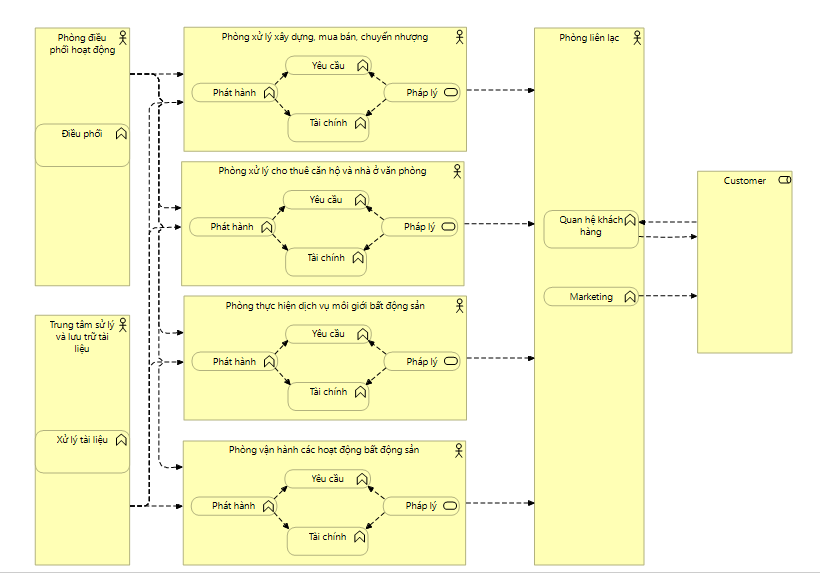


                          Figure 7: Góc nhìn tổ chức

## Business Functions

- Các chức năng nghiệp vụ của doanh nghiệp:

* Marketing:  nghiên cứu, lập kế hoạch, quảng bá và quản lý sản phẩm, dịch vụ và phân khúc thị trường
* Quan hệ khách hàng: bao gồm các tương tác giữa  và khách hàng; nó xử lý các câu hỏi của khách hàng, nắm bắt các yêu cầu đến và thực hiện các chiến dịch tiếp thị trực tiếp.
* Phát hành: định giá cho các hợp đồng riêng lẻ và tạo ra các đề xuất và chính sách dịch vụ kèm theo cho khách hàng
* Yêu cầu: thực hiện và đưa phản hồi của Tuan321 đối với từng yêu cầu hoặc khiếu nại đối với một trong các chính sách của Tuan321
* Tài chính: bao gồm thu phí các dịch vụ của khách hàng được ký theo hợp đồng và xử lý các yêu cầu đề xuất về tài chính phát sinh từ phía khách hàng
* Pháp lý: Thực hiện, xử lý các thủ tục pháp lý về giao dịch bất động sản.
* Xử lý tài liệu: hỗ trợ các chức năng khác thông qua quét, in và lưu trữ tài liệu.
* Điều phối: Quản lý hoạt động, tiến độ của các phòng ban.

# Pha C: Kiến trúc dữ liệu

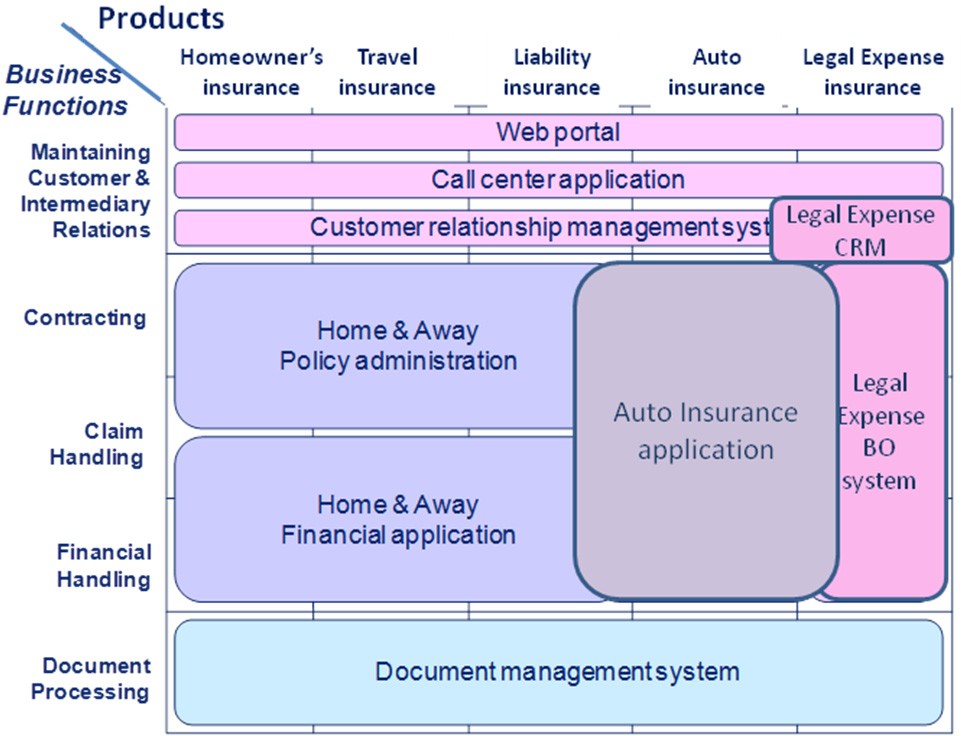
Since the merger, the three divisions have adopted a common web portal, contact center software suite, and document management system. Also, the company has selected a strategic CRM solution and implemented it for both Home & Away and PRO-FIT. However, due to management’s focus on minimizing post-merger risks while continually improving the day-to-day performance of each division, core business application rationalization has not begun. Now that ArchiSurance has met post-merger performance expectations, investors expect substantial IT cost savings through the adoption of a common set of product and customer- focused applications. Therefore, a number of challenges remain. Home & Away still uses its pre-merger policy administration and financial application packages, while PRO-FIT and Legally Yours still use their own pre-merger custom monolithic applications.

Figure 10: Application Landscape

## Application Co-Operation

ArchiMate defines an Application Co-operation viewpoint to show an overview of the application landscape and the dependencies between the applications:

The Application Co-operation viewpoint describes the relationships between applications components in terms of the information flows between them, or in terms of the services they offer and use. This viewpoint is typically used to create an overview of the application landscape of an organization. This viewpoint is also used to express the (internal) co-operation or orchestration of services that together support the execution of a business process.

The TOGAF counterpart of this viewpoint is the Application Communication diagram.

Figure 11 shows the main applications of ArchiSurance, as well as the main data flows between the applications.

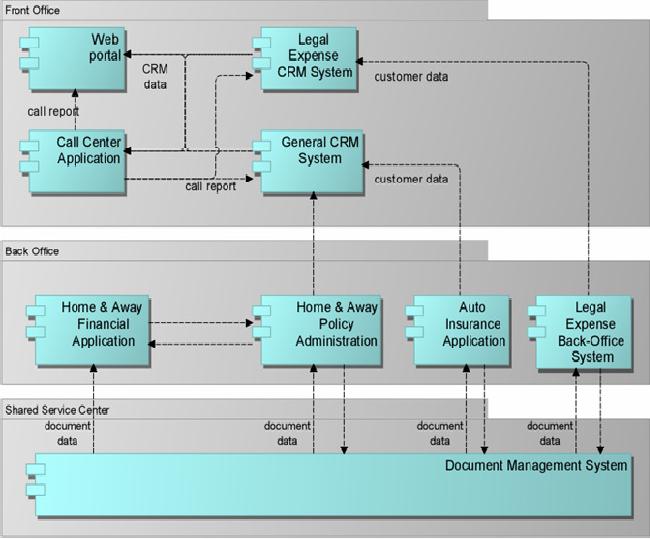


Figure 11: Application Co-Operation View

## Business-Application Alignment

TOGAF does not define diagrams for business-application alignment. However, it does specify matrix-based viewpoints to show the links between the business and the application architecture; e.g., an Application/Organization matrix and an Application/Function matrix.

The relationships between application components can also be modeled graphically. ArchiMate defines the Application Usage viewpoint:

The Application Usage viewpoint describes how applications are used to support one or more business processes, and how they are used by other applications. It can be used in designing an application by identifying the services needed by business processes and other applications, or in designing business processes by describing the services that are available. Furthermore, since it identifies the dependencies of business processes upon applications, it may be useful to operational managers responsible for these processes.

The Application Service concept plays a central role in this viewpoint. Figure 12 shows a subset of the services offered by the applications used by the Home & Away division of ArchiSurance, and which of the sub-processes of the claim handling process make use of which of these services.

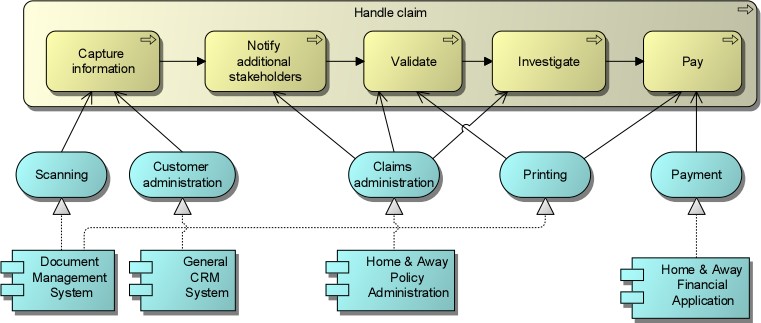


Figure 12: Application Usage View

# Phase C: Baseline Information Systems Architectures (Data)

The ArchiSurance data architecture describes the major relationships between its conceptual business objects and its logical data objects. ArchiMate defines the Information Structure viewpoint for this purpose:

The Information Structure viewpoint is comparable to the traditional information models created in the development of almost any information system. It shows the structure of the information used in the enterprise or in a specific business process or application, in terms of data types or (object-oriented) class structures.

One of the data viewpoints that TOGAF defines is the Logical Data diagram.

Figure 13 shows a subset of the business objects that ArchiSurance defines. Part of the customer information is an insurance file, which is composed of insurance requests, insurance policies, and damage claims. A number of specializations of the insurance policy object are defined, one for each type of insurance that ArchiSurance sells.

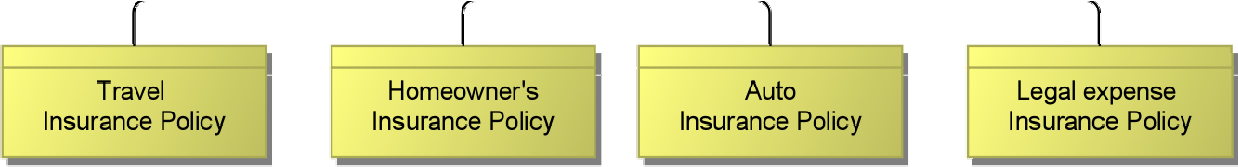
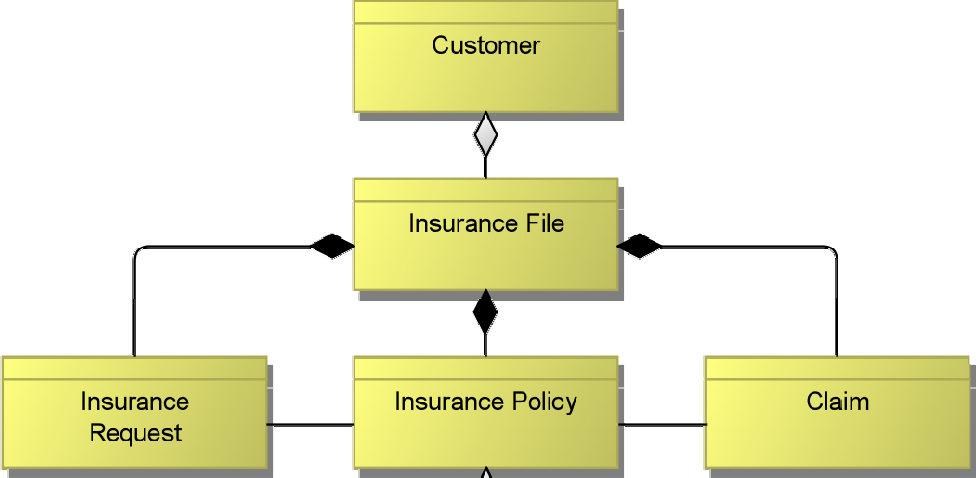


Figure 13: Information Structure View

Another data viewpoint that TOGAF defines is the Data Dissemination diagram:

The purpose of the Data Dissemination diagram is to show the relationship between data entity, business service, and application components. The diagram shows how the logical entities are to be physically realized by application components. This allows effective sizing to be carried out and the IT footprint to be refined.

Moreover, by assigning business value to data, an indication of the business criticality of application components can be gained.

Figure 14 shows a Data Dissemination diagram for one ArchiSurance application.

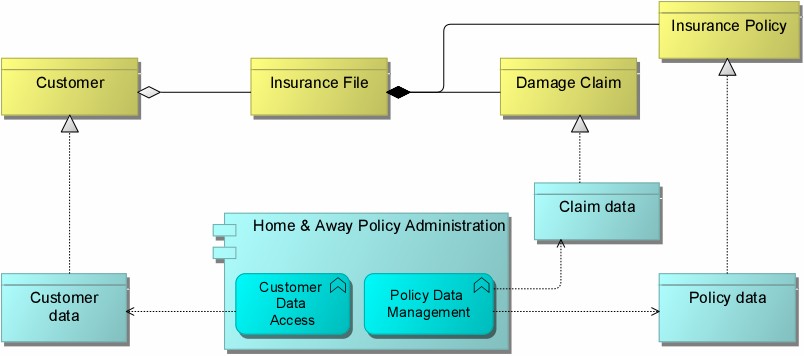


Figure 14: Data Dissemination Diagram

# Phase D: Baseline Technology Architecture

Figure 15 sketches the technical infrastructure landscape of ArchiSurance. In the front-office, located at the Home & Away headquarters, there is a general-purpose server and one dedicated to web hosting. The Shared Service Center (SSC), located at the PRO-FIT headquarters, has its own server for the document management system. Each of the three back-offices has a server for its applications.

A Local Area Network (LAN) connects servers and personal computers at each of the three ArchiSurance locations, which are in turn connected by a corporate Wide Area Network (WAN).

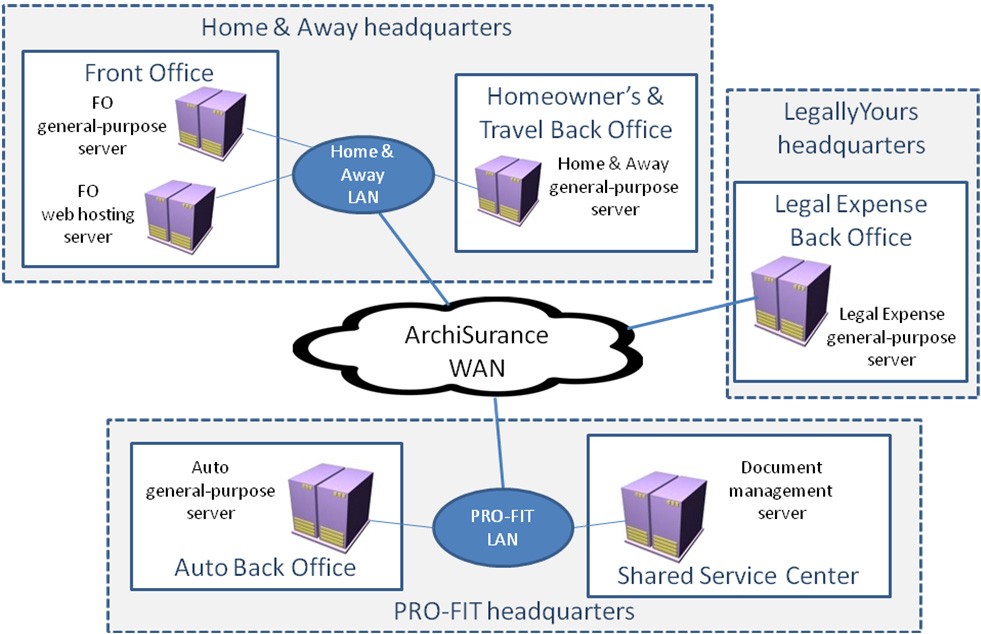


Figure 15: Infrastructure Landscape

For an overview of the infrastructure landscape, ArchiMate defines the Infrastructure viewpoint:

The Infrastructure viewpoint contains the software and hardware infrastructure elements supporting the Application Layer, such as physical devices, networks, or system software (e.g., operating systems, databases, and middleware).

The TOGAF counterpart of this viewpoint is the Environments and Locations diagram.

Figure 16 shows the main infrastructure components of ArchiSurance, grouped by location and department. Also the networks that connect the different devices, and the (application) artifacts deployed on the devices, are shown in this view.

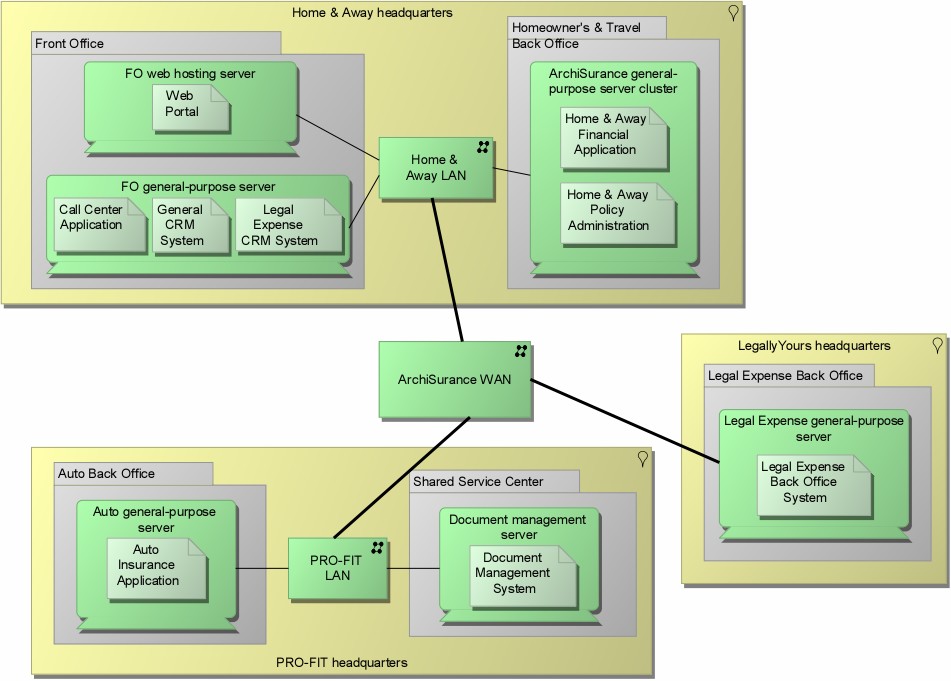


Figure 16: Infrastructure View

# Change Scenarios

## Scenario 1: Application Portfolio Rationalization

The inflexibility of the ArchiSurance application architecture makes it difficult to adapt to changes in business conditions. Partly as a result of the merger, the application landscape has become scattered, resulting in data redundancy and functional overlap, as well as point-to-point application integration using a variety of data formats and methods. These problems cause internal instabilities, increased application maintenance costs, and obstacles to sharing information across the company and with partners. Consequently, the IT department has a sizable backlog of work requests. ArchiSurance top management is very concerned about the backlog, particularly an unmet need to share information automatically with high-volume contracted sales partners and influential insurance consultants.

This scenario rationalizes the ArchiSurance application portfolio by:

* Migrating to an integrated back-office suite for functions such as policy administration and financial transactions. The suite will consist of:
  + *AUTO-U*, an automated underwriting system that generates proposals and policies
  + *P-ADMIN*, a packaged policy administration system that integrates with the automated underwriting system to issue, modify, and renew policies; this system also handles customer accounting and billing
  + *VERSA-CLAIM*, a packaged claims system with screens and workflow that can be configured to support ArchiSurance’s three lines of business
  + *P-CONFIG*, a product configurator management used to define all insurance products, and expose these definitions to AUTO-U, P-ADMIN, and VERSA-CLAIM through web services
  + *BRIMS,* a business rule management system (BRMS) consisting of a rules repository, a processing engine, a rule development environment, and an authoring tool for rule management user interfaces. The business rule engine exposes rule execution capabilities to AUTO-U, P- ADMIN, VERSA-CLAIM, and P-CONFIG through web services.
* Completing the migration to the strategic CRM system

The ArchiSurance lead investors and CEO support these initiatives on the condition that all changes are invisible to ArchiSurance customers and partners. The insurer’s products and services must not be affected, and all customer and partner interactions must proceed uninterrupted and unchanged.

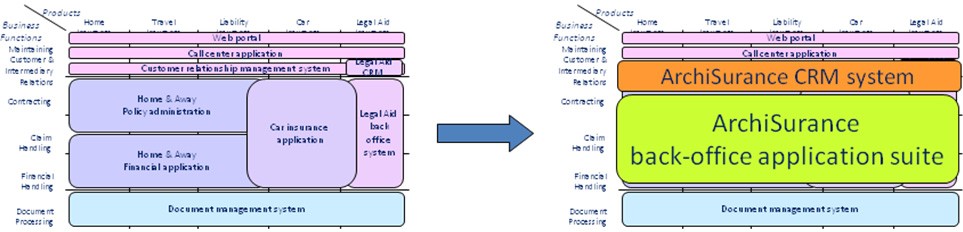


Figure 17: Application Portfolio Rationalization

As part of this effort, the technical infrastructure will also be simplified. The separate back-office servers will be replaced by a shared server cluster located in the data center at Home & Away headquarters. However, to ensure business continuity, there will also be a back-up server cluster located in the data center at PRO-FIT headquarters.

***Phase A: Architecture Vision***

Phase A of the TOGAF ADM establishes an architecture effort and initiates an iteration of the architecture development cycle by setting its scope, constraints, and goals. This phase also validates the business context and develops a Statement of Architecture Work.

The business context consists of the key business requirements based upon the main business goals and architecture principles. Some relevant business goals and principles for the current scenario are shown in Figure 18.

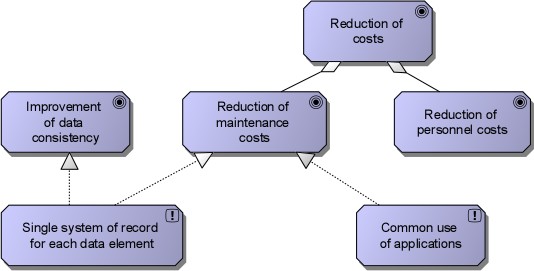


Figure 18: Business Goals and Principles

Goals and principles are the basis for concrete requirements, as shown in an ArchiMate Goal Refinement viewpoint:

The Goal Refinement viewpoint allows a designer to model the refinement of (high-level) goals into more concrete goals, and the refinement of concrete goals into requirements or constraints that describe the properties that are needed to realize the goals. The refinement of goals into sub-goals is modeled using the aggregation relationship. The refinement of goals into requirements is modeled using the realization relationship.

Figure 19 shows an example of such a view for the current change scenario.

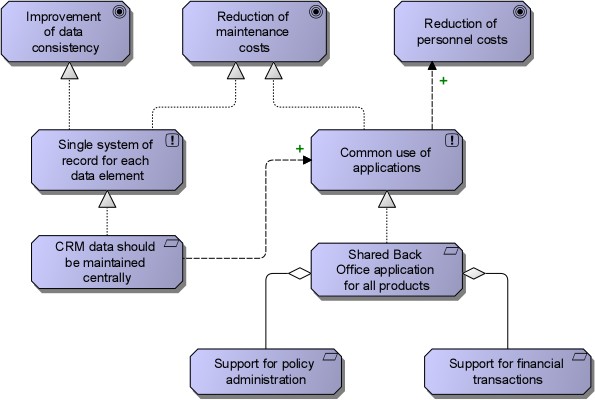


Figure 19: Goal Refinement View

An important element of the architecture vision is a high-level representation of the baseline and target architectures, to explain the added value of the architecture effort to stakeholders. For this purpose, ArchiMate defines the Introductory viewpoint:

The Introductory viewpoint forms a subset of the full ArchiMate language using a simplified notation. It is typically used at the start of a design trajectory, when not everything needs to be detailed yet, or to explain the essence of an architecture model to non-architects that require a simpler, more intuitive notation. Another use of this basic, less formal viewpoint is that it tries to avoid the impression that the architectural design is already fixed, an idea that may easily arise when using a more formal, highly structured, or detailed visualization.

The TOGAF counterpart of this viewpoint is the Solution Concept diagram.

The example below highlights the most important changes that are needed in the current change scenario:

* In the Front-Office, the separate CRM system for Legal Expense will disappear.
* In the Back-Office, the separate back-office applications will be replaced with a single back-office suite. The three separate general-purpose back-office servers will be replaced by a shared server cluster and a back-up server cluster.

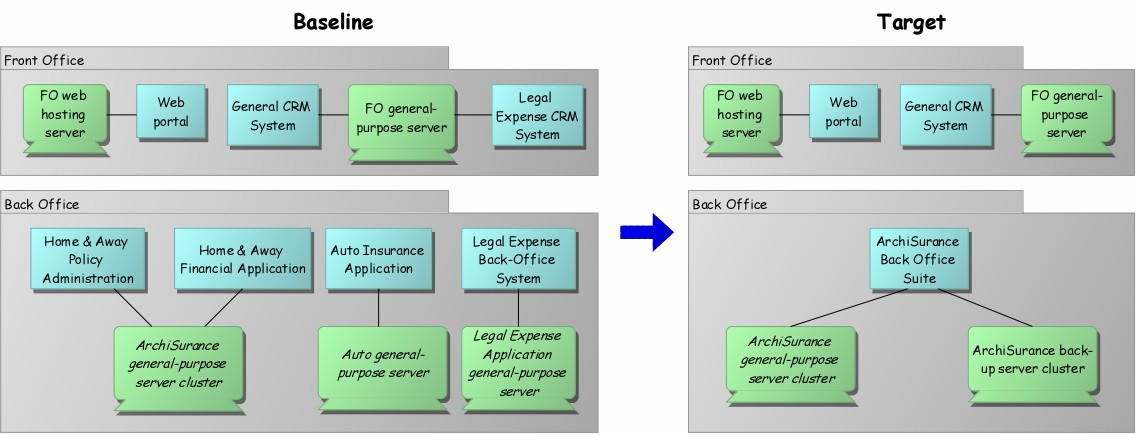


Figure 20: Introductory View

***Phase B: Target Business Architecture and Gap Analysis***

In this scenario, the business architecture remains unchanged. However, in the business architecture, we also show how the target architecture realizes the key business requirements. For this purpose, TOGAF specifies a Business Footprint diagram. In ArchiMate, this can be expressed using the Requirements Realization viewpoint, defined as follows:

The Requirements Realization viewpoint allows the designer to model the realization of requirements by the core elements, such as business actors, business services, business processes, application services, application components, etc. Typically, the requirements result from the goal refinement viewpoint.

The example below shows how the business requirements established in the architecture vision phase are realized by elements in the architecture.

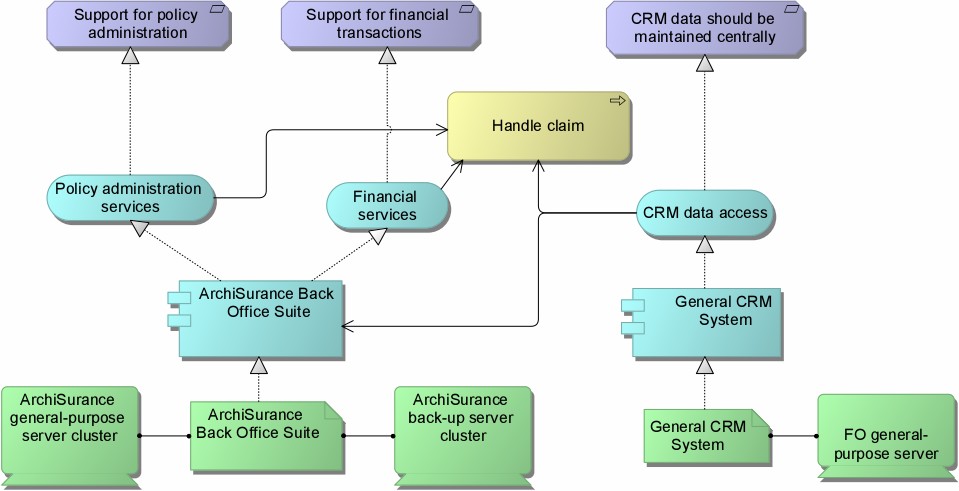


Figure 21: Requirements Realization View

***Phase C: Target Application Architecture and Gap Analysis***

The Application Communication diagram below shows the proposed target situation for the application landscape.

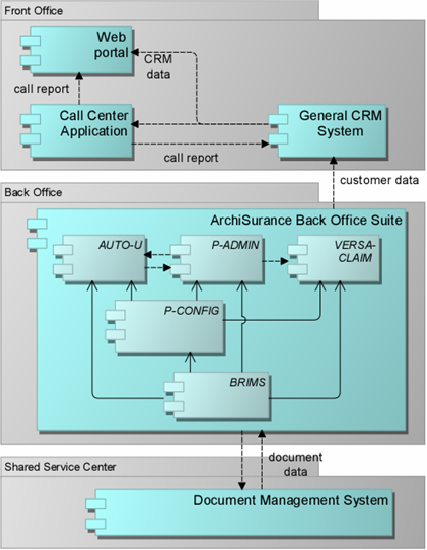


Figure 22: Target Application Architecture: Application Co-Operation View

The results of a global gap analysis for the application architecture are visualized below. Several application components that exist in the baseline architecture are no longer present in the target architecture: the separate back-office applications and the separate Legal Expense insurance CRM system. The CRM functionality for Legal Expense insurance customers is taken over by the general CRM system; therefore, this does not require new components (although it may be necessary to adapt or reconfigure the existing general CRM system, this is not shown in the gap analysis). In addition, a completely new back-office application suite is introduced.

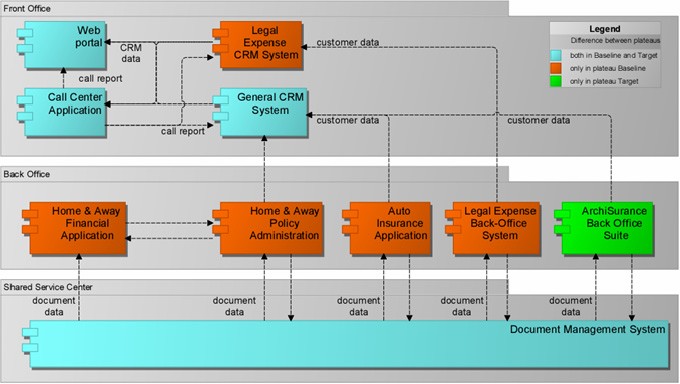


Figure 23: Application Architecture: Gap Analysis

***Phase D: Target Technology Architecture and Gap Analysis***

The Infrastructure view below shows the proposed target situation for the technical infrastructure landscape.

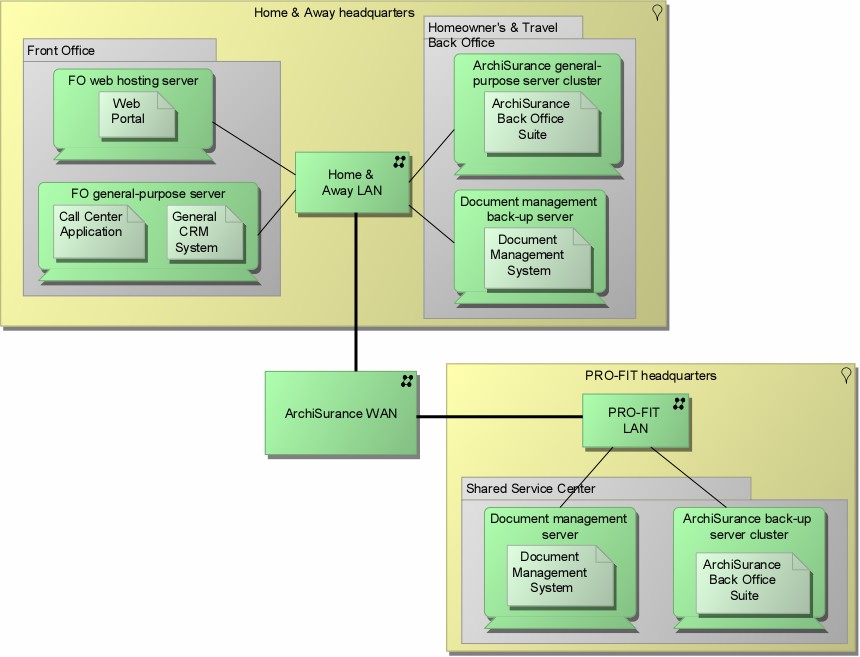


Figure 24: Target Technology Architecture: Infrastructure View

Figure 25 visualizes the results of a global gap analysis for the technology architecture. The separate general- purpose back-office servers are slated for removal. The original server cluster of Home & Away is to become the central ArchiSurance back-office service cluster, and an additional back-up server cluster is to be placed in the SSC at PRO-FIT headquarters. There is also a back-up document management server to be placed in the Home & Away back-office. The new back-office suite and the document management system are to be replicated on their respective main servers and back-up servers.

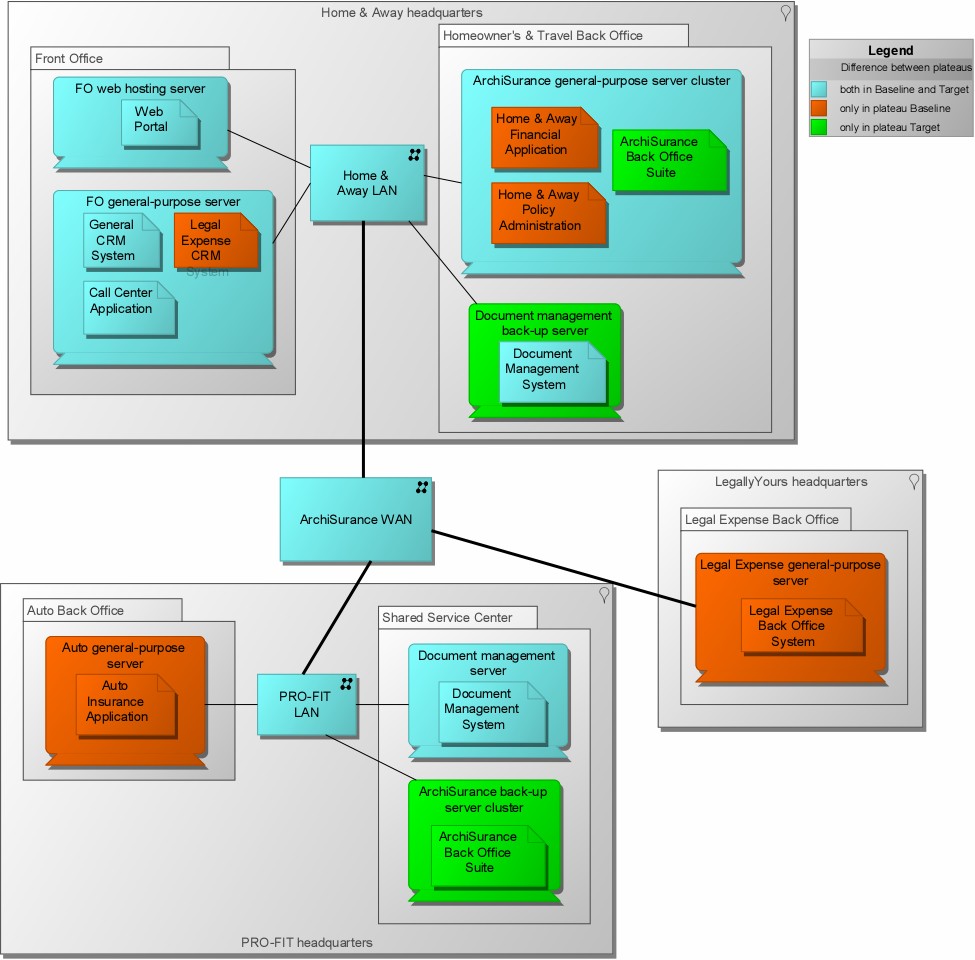


Figure 25: Technology Architecture: Gap Analysis

***Implementation and Migration Planning***

TOGAF 9 introduces for Phases E and F the *transition architecture*, representing a possible intermediate situation (“plateau”) between the baseline architecture and the target architecture.

In ArchiMate, the baseline, target, and transition architectures, as well as their relationships, are shown using the Migration viewpoint:

The Migration viewpoint entails models and concepts that can be used for specifying the transition from an existing architecture to a desired architecture.

Figure 26 shows an example for the current scenario. The IT department of ArchiSurance does not have sufficient resources to carry out the integration of the back-office systems and the integration of the CRM systems in parallel. One transition architecture therefore replaces two CRM systems with one, but has separate back-office systems. Another has a single back-office suite but two CRM applications.

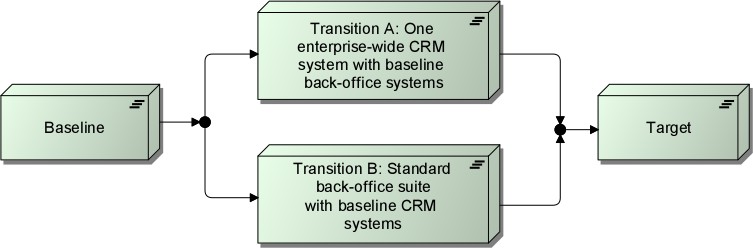
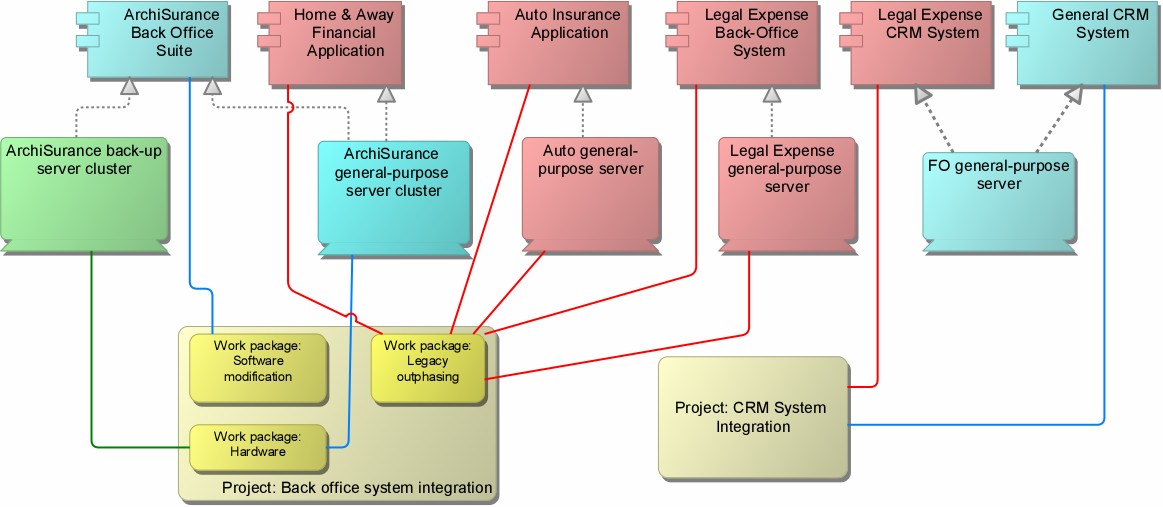


Figure 26: Migration View

Transition architectures enable the planning of implementation projects such as CRM integration and back- office application integration. The sequence of these projects depends on which of the transition architectures is selected. This can be is shown in a TOGAF Project Context diagram (Figure 27):

A Project Context diagram shows the scope of a work package to be implemented as part of a broader transformation roadmap. The Project Context diagram links a work package to the organizations, functions, services, processes, applications, data, and technology that will be added, removed, or impacted by the project.

Figure 27: TOGAF Project Context Diagram, expressed in ArchiMate

## Scenario 2: Online Portfolio Management

In this scenario, that assumes the target state of Scenario 1 as the new baseline, customers gain direct access to their insurance portfolios through the web. This reduces the number of customer interactions with the front-office by enabling customers to:

* Securely purchase, renew, or modify their homeowner’s, travel, auto, or legal expense insurance online consistent with the rules that ArchiSurance uses to conduct its business
* Receive help with their online transactions by:
  + Searching a knowledge base for answers
  + Initiating a chat session with a Customer Service Representative (CSR)
  + Using a web form to compose and submit an email that will be answered by a CSR
  + Using a web form to request a phone call from a CSR
* Access information and special offers from ArchiSurance partners that are tailored to their needs, such as banking and financial planning services, investments, credit cards, and other types of insurance

For this scenario, there are no models available yet. The Open Group encourages its members to contribute to future versions of this Case Study. Contributors may extend or add detail to the two scenarios presented here, or they may create new scenarios. In order to foster a coherent body of work, however, the baseline architectures for new change scenarios should be either the baselines or targets of the change scenarios presented here.

# References

1. TOGAF® Version 9.1, The Open Group, published by The Open Group, 2011 ([www.opengroup.org/togaf).](http://www.opengroup.org/togaf))
2. ArchiMate® 2.0 Specification, The Open Group, due January 2012.
3. Doest, H., Iacob, M.-E., Lankhorst, M.M. (Ed.) & van Leeuwen, D.: Viewpoints Functionality and Examples, ArchiMate Deliverable D3.4.1a v2, TI/RS/2003/091, Telematica Instituut, Enschede, The Netherlands, 2004.
4. van den Berg, H., Moelaert, F.: PRO-FIT Autoschade Open Case Testbed, Testbed Deliverable WP3/N004/V001, TRC, Enschede, The Netherlands, 1997.

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The Open Group is a global consortium that enables the achievement of business objectives through IT standards. With more than 400 member organizations, The Open Group has a diverse membership that spans all sectors of the IT community – customers, systems and solutions suppliers, tool vendors, integrators, and consultants, as well as academics and researchers – to:

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