9. Implementing BIMC

9.1 A roadmap for BIMC

The intelligent customer guidance suggests the following as a roadmap for '*how to get started*'. To a large extent, any roadmap depends on knowing the state of play in your enterprise and with regard to BIM, whether or not BIM activities exist. With that in mind, you should think about the state-of-play of BIM right now and whether or not you need to do some 'marketing'.

Remember the Introduction? BIM is the ability of the enterprise to set up an expert interface between all business information activities and the users and suppliers of that information; ensuring a strategic design and execution for the governance and management of the BIM organization. By now you know why the enterprise needs a BIM coordinator (or a team, depending on the size of the organization). BIMC will support business managers, IS planners (governed by some form of BIM board/ IS Steering Committee, the ISSC) and programme directors in translating the Policies of the Management Board (the guiding principles) into purpose and direction for the managers of IT services.

The generic features of the best practice of 'the Intelligent Customer capabilities' are used when design the BIMC organizational structure.

We distinguish four areas of responsibility within the value chain of the generic BIMC. These four are illustrated in Figure 9.1.

The focus areas of customer management and policy, innovation and advice (PIA) form the demand management side of the Intelligent Customer. This is about matching supply and demand. Demand management deals with topics such as: researching, identifying, combining, rationalizing, standardizing, modulating and prioritizing demand. Only enterprises such as Google and Facebook can truly claim to have performed these activities religiously, which is what you should be aware of when using Facebook, for in practice is using your data as a profit generator.

The areas of focus for contract management are supply management and focus on topics such as market conformity and market standards, relationships with suppliers, contracts, legal aspects, performance agreements and control.

Supply and demand management are inextricably linked and highly dependent on each other.
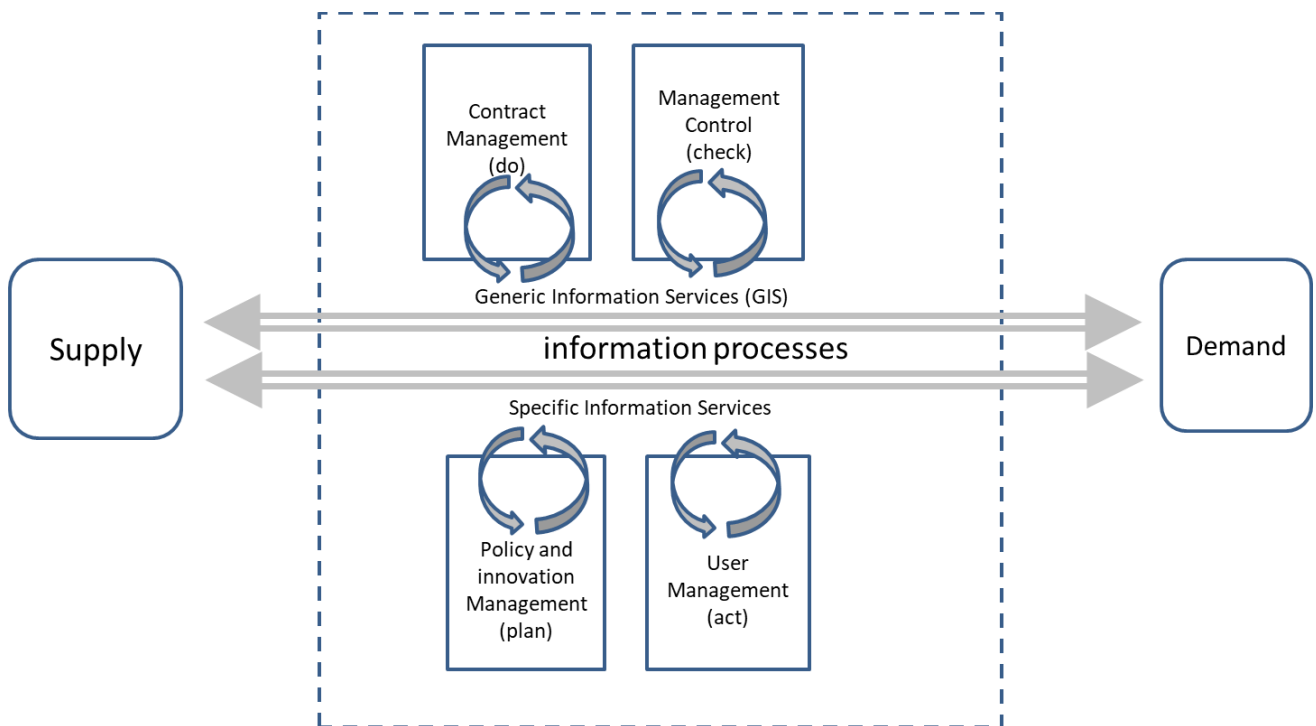
9.2 Opening up BIMC: Four responsibilities

Policy, innovation and advisory (PIA) management requires that needs are translated into products or services that must fit within standards and agreements as applied by the enterprise. Clearly this is a Planning task and is therefore Strategic, dealing with the necessary Policy. This responsibility fits within the Business perspective. **Contract management** (the 'Do' element of the Deming cycle) will be needed to drive the purchase of needed products or services and the DID perspectives of Information and Services will be influential in determining the design of the necessary services. Contract management is a responsibility that BIMC undertakes to make agreements with the market

(some of which activities are also relevant to the design and build of services by internal departments). These agreements must be managed.

Management control is the 'Check' element of the Deming cycle, ensuring that any contracts (or agreements) made are met and the finances are guaranteed. This responsibility should be undertaken within the DID Service perspective. All Policy directives and strategic principles and designs should be thoroughly audited.

User management focus (the 'Act' part) is responsible for all internal needs or questions that must be articulated and addressed. This responsibility fits within the Services and Technology perspectives. Where BIM and DID are concerned the need is to ensure that services process the required information as they should, that data is both accurate and properly managed and that the needs of business have been fulfilled. Feedback about, for example, the design of the applications or the limitations of current technology will help the board to provide for continuous improvement by influencing new or adjusted policies and therefore new or improved services.

Figure 9.1 Opening up BIMC: Four responsibilities

The four responsibilities are linked to one another through information processes/ services. In the main process - ensuring the delivery of the information services (delivery process) - two streams are recognized: standard user needs or standard user services, and specific user needs or user services.

Examples of standard services are requesting a new password, the request for a new workplace or for data (reports) to be circulated. Examples of specific needs are the application for a license for a non-standard software package (for example a word processor specifically for mathematical symbols), demand for new information services based on new policies, the application for a new software package or implementation, or the conduct of a tender. For the moment we use these two types of information processes to explain the functioning of BIMC. With regard to BIM it is clear that

accuracy of data is a key component of the ability of any BIMC to be able to guarantee quality of services.

BIMC will need to address standard and non-standard information sources, information requests, processing, storage, archiving and sharing issues.

Non-standard needs are, surprise, surprise, not known in advance and answers cannot be planned. PIA management will have to examine the best solution as such questions arise. In cooperation with contract management, we can look at which solution is the most suitable (and thinking as one of the capabilities of the intelligent customer), can be supplied by the market. Performance management is also a process within control management.

In general, we see these four responsibilities reflected in all enterprise forms of BIMC. However, it will differ for each enterprise whether responsibilities are carried out locally, carried out by third parties or other enterprise units where different departments have to work together. In terms of BIM, employing the DID domains and perspectives as lenses through which to apply intelligent customer thinking will radically improve the ability of the enterprise to design and build robust applications that process data effectively.
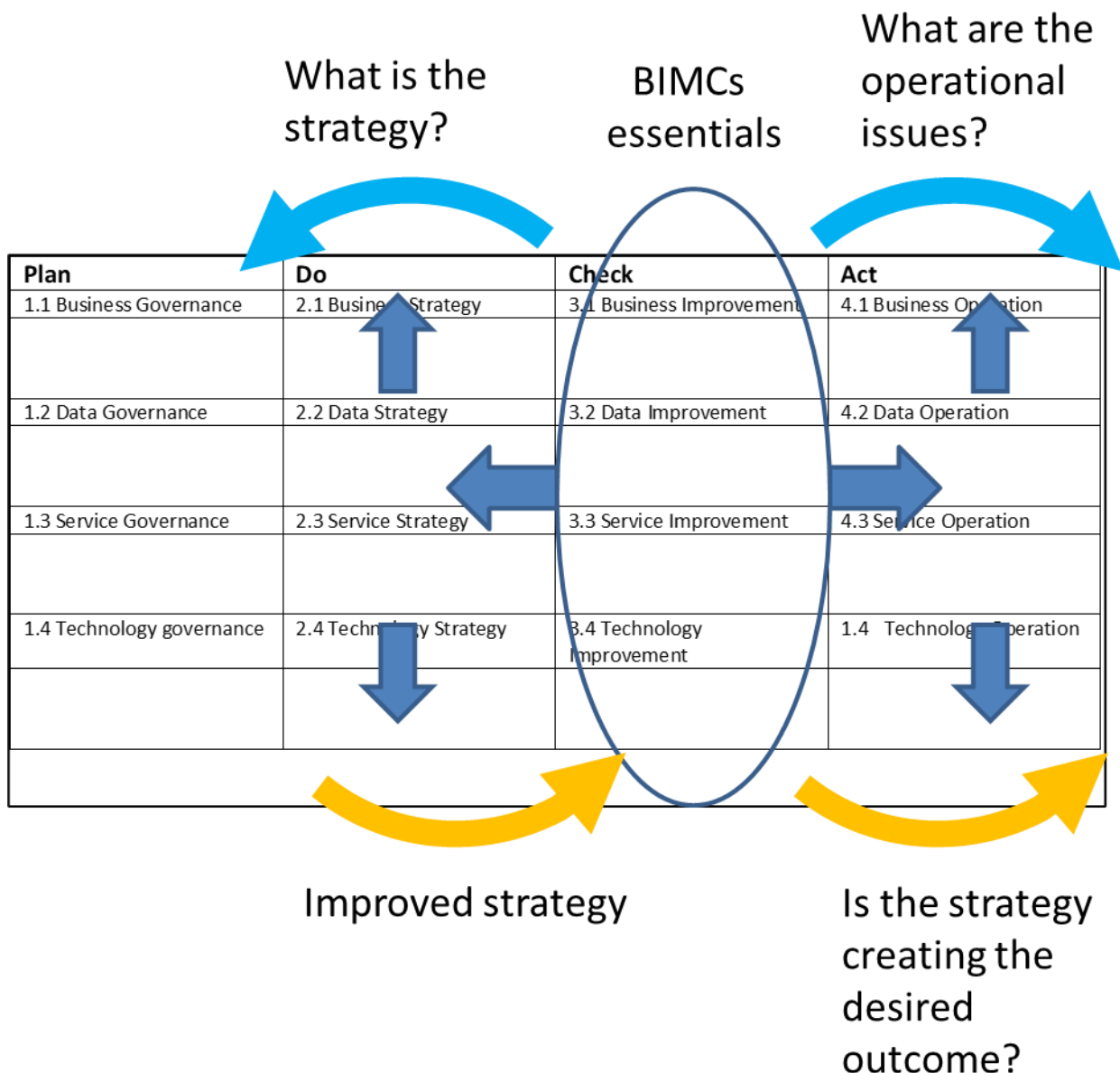
9.3 Building BIMC using DID guidance

Now use the DID model to understand and organize the activities within BIMC.

The necessary BIMC capabilities, extrapolated from the intelligent customer guidance, are linked to one another in a quality cycle in the form of the Plan-Do-Check-Act (PDCA) cycle. The DID domains (governance, strategy, improvement and operation) are directly related to PDCA. Each main step from the Deming circle contains a cluster of responsibilities. These responsibilities relate to BIM responsibilities in the four DID domain (governance, strategy, Improvement and Operation) and its perspectives Business, Service, Data/Information and Technology, and would be the responsibility of BIMC. The various responsibilities are the substantive tasks of BIMC and therefore the business information activities can be related to the best practice intelligent customer responsibilities. These four responsibilities are:

- policy, innovation and advice (PIA) management (Plan, mostly Governance in the DID model),
- contract management (Do, mostly Strategy in the DID model),
- control management (Check, mostly Improvement in the DID model)
- and user management (Act, clearly the Operational focus of the DID model).

1. Step 1. Understand the issue at hand; you can use table 9.1 to give you an idea of the types of key topics in each domain and using the perspectives to gain insight. Keep in mind what we mentioned earlier that you need to distinguish between green and brown fields, or hybrid situations and consider how your thoughts correspond to the Drivers. In chapter 6 we presented a straightforward approach to BIM; now we go forward with a more complex but more effective approach using BIMC. In this case, the essence of BIMC can be found in the

improvement domain. Basically, all topics in this domain must be covered to support operational and strategical information management.

2. In Step 2, again, we follow the PDCA cycle; this is not accidental. Placing guidance in the widely accepted Deming cycle for continuous improvement makes sense. Thus, we need to look back to discover if strategic issues are covered, and forward to see whether all necessary issues in the operational perspective are taken care of.

Plan	Do	Check	Act
1.1 Business Governance	2.1 Business Strategy	3.1 Business Improvement	4.1 Business Operation
1.2 Data Governance	2.2 Data Strategy	3.2 Data Improvement	4.2 Data Operation
1.3 Service Governance	2.3 Service Strategy	3.3 Service Improvement	4.3 Service Operation
1.4 Technology governance	2.4 Technology Strategy	3.4 Technology Improvement	1.4 Technology Operation

Figure 9.2: Building BIMC: Analysis of outcomes

Step 3: start with an issue in the Improvement domain, we selected *3.1 Business improvement* on the model—it is not important **where** you start but following the flow we describe will make it easier to draw the DID model and cover the issues that arise.
Next, follow with the Strategy domain, and decide on the changed strategy that translates into improvement actions. In the model you will navigate back from the Strategy domain into the Improvement domain where the strategic actions are translated into implementation plans and activities and are implemented within the Operation domain.

The process then indicates several strands that you should amplify to analyze the issues and understand the issues to be covered. See figure 9.2.

Figure 9.2: Implement and improve BIMC

9.4 Results of analysis in the different DID domains

9.4.1. User management
The first step is to make the connection with the business and users. What is the need? Why is this need there? Does this need occur in more places within the enterprise? In practice, you never have to start from scratch. Consider the well-researched use of IT in the enterprise; evidence suggests that technology is rarely implemented 'green field'; even where this is a Policy statement, most often

projects fail because it is not recognized that implementation must be based on existing technology. There is always a legacy issue with IT. This is the case for any BIM project; unless you work for a start-up that erupted from a brainstorm in the local pub, most data sources and processes will already exist albeit if most are chaotic and were constructed without a strategic overview.

In the case of BIM, consider the drivers Need and Value in the DID model and of course BIMC must also assess viability by examining the tension between Mission of the enterprise and its current Capability.

While working, a network of relationships within the enterprise will be built. It can and should not end there. This relationship structure should be based on the principles of the Intelligent Customer capabilities. For example, the following capabilities have been identified within the focus area of customer management, obviously they do not apply solely to the generic intelligent customer:

- Relationship management (internally focused). The goals are maintaining professional relationships with business and stakeholders with the following objectives: recognizing user needs and developments, receiving requests for new or adapted services, identifying suppliers, recording agreements with customers, steering the results and complaint handling.
- Advising / information management. Translating business demand or policy demand into services and possible solutions, taking into account dependencies between business processes and information systems, as well as providing insight into the (financial and other) consequences of the proposed solutions.

Case Study: Setting up a business change advisory board

BIMC and assessment of change

Consider an enterprise having four LoB; each has a 'local' BIMC implemented to keep watch over the data needs of day-to-day management of BIM. One of the LoB is commissioner for a multi-million business application renewal project. After two years it becomes imminent that changes in the specifications are required as a result of new business developments. Originally it was decided by the Board that a 'freeze' should be in place, that is, no changes would be allowed to impact the specification. A specific governance rule was that changes that had consequences in time and money were not allowed unless mandated by the steering committee. However, this rule was not implemented.

It soon became clear to project teams that specifications were either incorrect or had not been thought through and that it would be sensible to disregard the freeze to make the new IT fit for use. Mostly the changes seemed to have only a technical consequence but the local BIMC discovered that the so-called technical changes would have major business processing consequences. BIMC also discovered that management became aware about changes too late in the process. By then, changes were already agreed on and budget was already allocated to project teams, and in some cases already spent.

Establishing control

Only after project control was properly executed it was found that budget overrun was inevitable because of changes accepted without official executive mandate. Project management requested therefore a change procedure for the business *before* technical impact analysis and proposals were issued to avoid any discussions on business needs and the financial consequences being undertaken by those without the necessary business experience (in other words, IT). The change procedure was set up according to the following agreement.

Local BIMC was charged with the creation of a change advisory board (CAB) within each LoB to make sure that any changes technical or relating to business processes or functions, would first be presented and analyzed against business use, the consequence for project lead time and possible budget consequences.

The CAB process was set up largely along the lines discussed in the ITIL framework, adapted for the specific needs of business and information, and chaired by BIMC. In particular:

- When possible improvements/changes are identified by the supplier or the business, first the change subject should be discussed in the CAB. Only after discussion and agreement by the business will further impact analysis be mandated. After any further impact analysis the changes would need to be presented again to the CAB.

- A description (using a standard format) needed to be created presenting the impact of the possible improvement/change. Before the final decision would be taken, four steps were foreseen: initial presentation, impact analysis, advice by the CAB, decision by the directors. If the change would be larger than a specific amount (in this case 70k euro) the formal steering committee would be convened to make the decision.

- All changes, including those not accepted, were to be registered in a BIMC CAB register.

- The Change Advisory Board (CAB) now meets every four weeks where all changes are discussed and decisions are taken. The contract manager is responsible or communication liaison with the supplier. BIMC is the liaison to executive management from the LoB. In case of urgent requests, CAB can be convened earlier.

- Only Directors can schedule a discussion of urgent requests.

BIMC took control over the entire business change/improvement process because of business ignorance of IT and IT ignorance of business. Neither business nor IT were to blame for their lack of knowledge because both disciplines are so radically different; however, where improvement is key (as described in the DID model), then simply hoping a change will do the trick simply does not work and it becomes clear that expertise is needed to make sure everyone is content with new services.

9.4.2 Policy, innovation and advice

If BIMC has made contact with the customer (the customer may also have taken the initiative) and has identified a need, BIMC must translate this need into a solution. To be able to do this, BIMC must have insight into the matter, the issues, the technology, the concrete solutions that are available internally or in the market and the solutions that may already be available elsewhere in the enterprise. Based on this responsibility, the following capabilities within the focus area of policy, innovation and advice are needed: Policy and strategy formation and preparation of strategic plans. Developing and maintaining the business strategy: the vision, spearheads, priorities and multi-year planning for the services of the enterprise in order to help realize the business strategy. This means clearly defining the strategy and translating it into the services that the Intelligent Customer provides in such a way that the synergy with and the development of the enterprise is optimal based on internal and external developments. The chosen strategy is then blueprinted in strategic plans.

- Manage architecture/ blueprint of business operations. The goal is monitoring and controlling the architecture/ blueprint of business operations, i.e. the consistent set of principles and models that coordinates the design and realization of processes, enterprise structure and information provision, including monitoring the optimal use of services.
- Portfolio management. Determining and monitoring the technical and logical coherence between the systems. The correct timing of new investments is important for the growth of the business. This does not necessarily relate to investments in new systems, but can also mean that investments are made in existing systems. In both cases it is important to prevent legacy problems (such as those with technology) and to alleviate problems that have already arisen in outdated services.
- Program management. Managing projects / programs that are executed by the project managers or suppliers on behalf of the customer enterprise. Coordinating the mutual coherence of those projects and making optimum use of the opportunities for synergy.

9.4.3. Contract management

After determining which solutions are suitable for improvement proposals, contract management comes into the picture. Contract management research the market for suitable service providers and takes care, often together with Purchasing and Finance, for contracting including underlying service level agreements. Where services (or application development) is outsourced It may be necessary to examine possible service integration with the service provider to ensure coherence in the information and/or supply partner chain. Capability within contract management is:

- Contract management, managing contracts at the strategic and tactical level. Negotiating contracts, adjusting contracts when changing circumstances require, monitoring the intended goal (from best buy to partnership).
- Supplier Management, managing supplier relationships. This means having knowledge of the market and developments therein understanding the supplier position and the range of services.
- Services integration, managing the information and supply chain. The monitoring and safeguarding of the coherence of the supplier-transcending production processes and the infrastructure, including ensuring proper agreements with regard to the functionalities of the total (production) chain.

9.4.4. Management Control

After the agreements have been made, the service can be delivered. Performance Management actively monitors whether the service agreements made are in accordance with contracts. Activities within performance management are:

- Control and measure. This is monitoring the quality of service. This includes measuring, analyzing, evaluating and improving the results (quality, costs, satisfaction) of services and managing the service catalogue.
- Quality Management includes monitoring and checking the efficiency and legitimacy of the services provided.
- Financial control and analysis, which includes monitoring the entire budget. The intelligent Customer will be responsible for preparing financial analyses and coordinating any payments to the supplier with the financial administration. BIMC is unlikely to embrace total responsibility for this monitoring, (unless no one else is responsible), though it is recommended that they take full control of the process regarding the development of information intensive application development.

These elements are generic intelligent customer capabilities. By this we mean that these elements are needed in every BIMC. They form the foundations with which a BIMC within the BIM Governance framework can in principle be designed.

However, it is the variation in size, scope, content and complexity of the BIM needs of the enterprise that makes every BIMC different.

9.5 Quantifying the added value of BIMC

Can we quantify the added value of BIMC? On the cost side this is not difficult. The costs mainly comprise personnel costs and because expertise is important, these costs are relatively high. Quantifying the benefits is more difficult unless the process of benefits management (discussed in the DID Foundation publication) is in place.

Without BIMC, the supplier has free rein, customers can ask for whatever they want and if that demand is insufficiently managed, this can lead to substantial additional cost overorunswhen designing and building business applications. .
Moreover, in IT-outsourcing contexts demand management is paramount to achieving success.[23] Added *value* arises from more effective use of resources, preventing excessive costs and and combating hidden costs. The cost of service development should be transparent to all parties and the customer should know and understand what they are paying for, what this entails and how their expectations will be met. Otherwise, you can expect the customer experience to be poor and the usual backlash about failing to meet expectations.

Looking at potential benefit in this way, that is, customer satisfaction being 'built in', using BIMC becomes a clear and obvious necessity.

More effective use of resources and control of costs

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[23] See GPAJ Delen, RJ Peters, C Verhoef, SFM van Vlijmen, "Lessons from Dutch IT-outsourcing success and failure." Science of Computer Programming 130 (2016): 37-68. And GPAJ Delen, RJ Peters, C Verhoef, SFM van Vlijmen, "Foundations for measuring IT-outsourcing success and failure." Journal of Systems and Software 156 (2019): 113-125.

BIMC can earn money for the enterprise. On the one hand by preventing extra expenses or costs (cost avoidance) and on the other hand through the effective use of demand and supply bundling (economies of scale or smarter, enterprise-wide portfolio management). The latter assumes that BIMC has a good understanding of the products and services that are being delivered and the underlying architecture (generic or not) or structure of the enterprise.

For example, a supplier can sell licenses multiple times to different users. With BIMC in between, the chance that this will happen is much smaller because there is a portfolio-wide overview. A study of portfolio management within the business world shows that just having a good overview of the total portfolio could save enormous amounts of money.

With a perspective on enterprise digitization and the data issues that pertain, it does not take much imagination to realize the cost savings that could be made by avoiding duplication of databases and inconsistency of data. Think of the value of the data to the social media companies and search engines………

Make hidden costs visible
When everything is in-house, there is little pressure to need document hours or charge costs for all activities. External suppliers generally think differently about this. The result is that these invisible activities suddenly become visible. A rough estimate is that these costs are at least 5%. With regard to BIM, hidden costs are most likely in the duplication of data and in data accuracy (which in most enterprises would better be described as inaccuracy).

For BIMC to have the right to exist, it must at least be able to provide evidence of how the function recoups its costs. This can be achieved through documentation of cost reduction, demonstration of effective use of resources through, for example, smart demand bundling and portfolio management, prevention of failure, and the prevention of additional costs by continually assessing whether the requested service is justified or necessary.