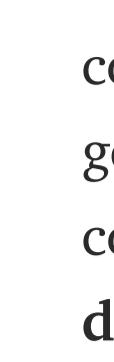


# Understanding Event-Driven Architectures (EDA): the paradigm of the future

What will EDA contribute to your digital business?



Telmo Subira Rodriguez [Follow](#)

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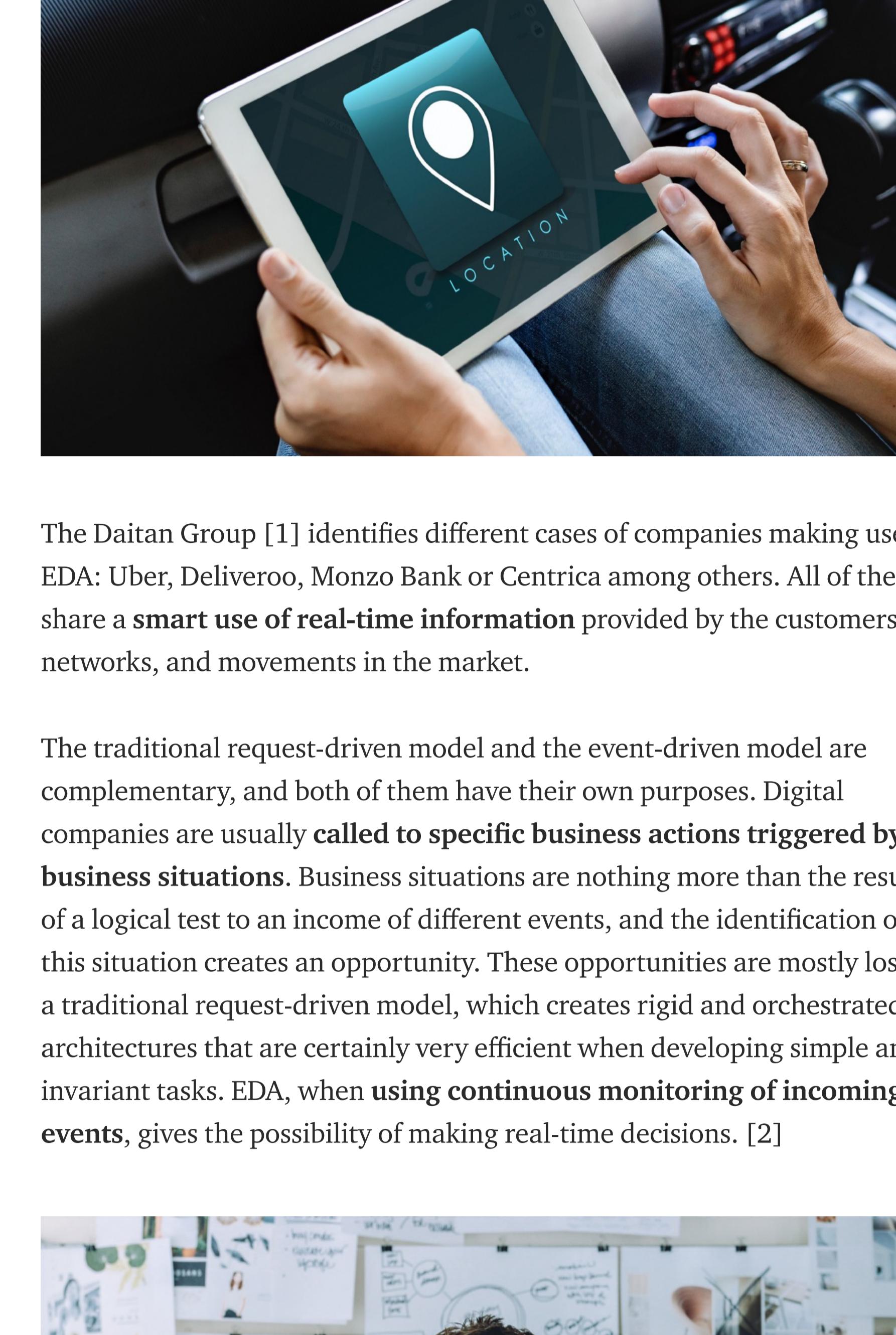
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You may have heard about Event-Driven Architectures already. The concept originated in the early 2000's referred to new message handling methods, and eventually became known as EDA [1]. Even when it is commonly used to refer to programming and software-designing, the EDA paradigm is also racing into the definition of business models and strategies.

This article will offer a brief overview of the EDA model and its benefits and challenges in different fields of application.

## 1. THE NEW THINKING: EVENTS

EDA focuses on the generation and handling of event notifications. This concept defines **strongly flexible architectures**, in which the elements generating event notifications do not need to know the receiver components. In addition to that, an event-driven architecture **has not a deterministic response time** for processing input events, but it is **much faster adapting to changes**. This paradigm makes possible to create real-time responsive architectures.



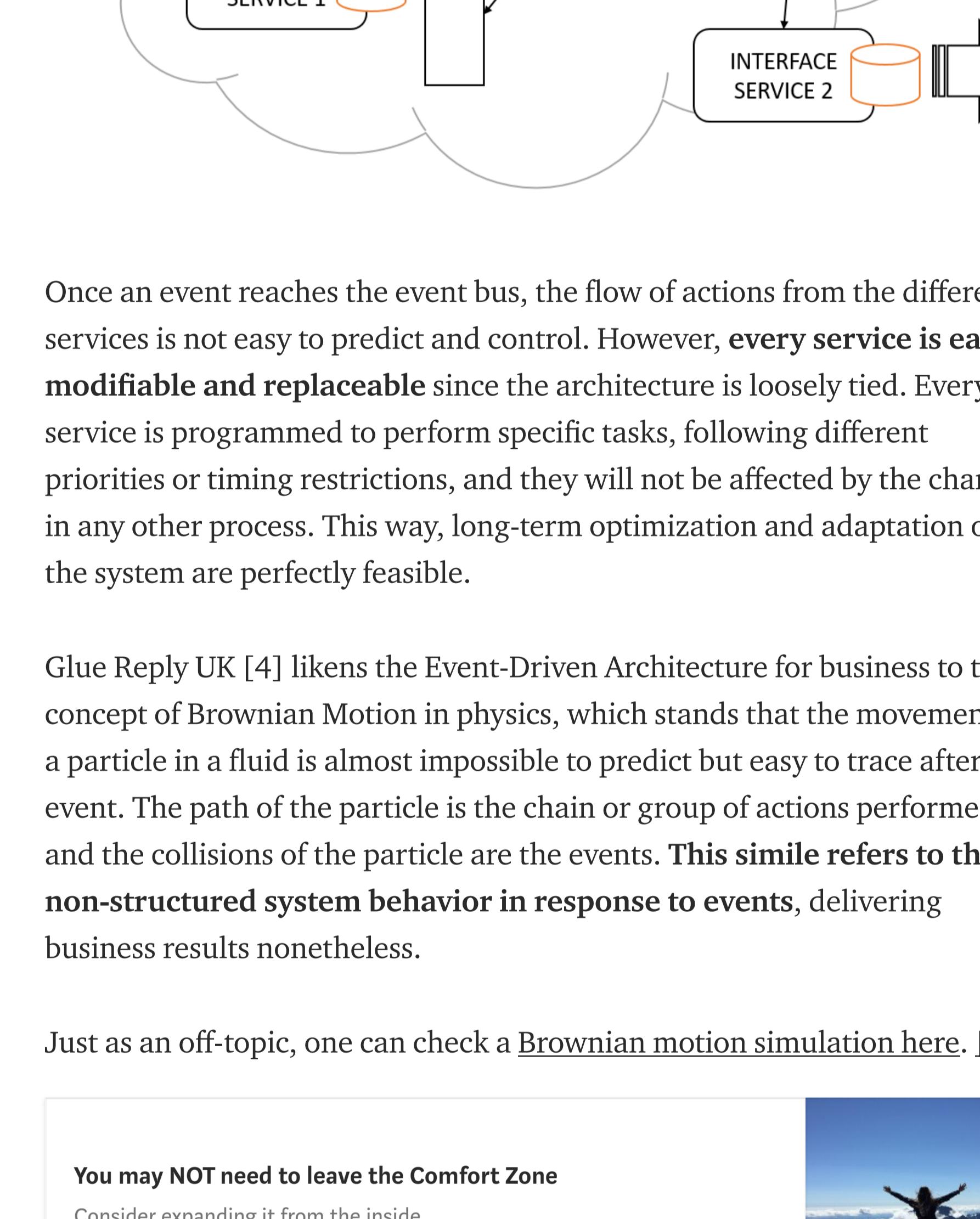
Event notifications imply modifications in the current state of the system. Notifications can be triggered by external sources such as user inputs, environmental conditions or needs of the market. However, there are also internal notifications of events, such as data sending for the pipeline work-chain, multicast of parameters for heterogeneous processing, internal triggers for certain services and generation of outputs. **In the end, events can be understood as something similar to messages between different modules of the system** [1], containing relevant information for the general and particular functioning of the system and its services.

## 2. EDA FOR DIGITAL BUSINESS

In words of Gartner [2],

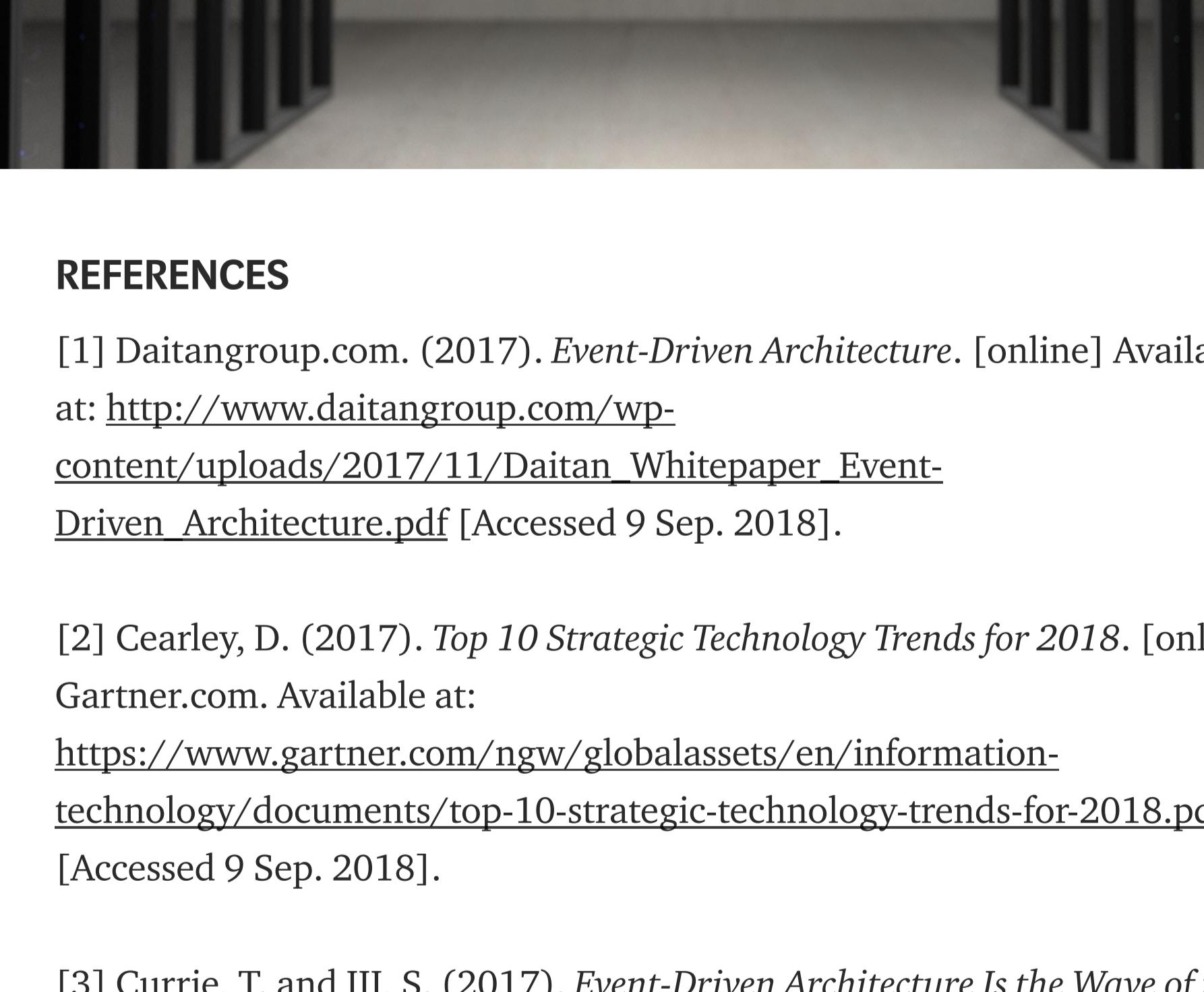
*"By 2020, eventsourced, real-time situational awareness will be a required characteristic for 80% of digital business solutions. And 80% of new business ecosystems will require support for event processing."*

Situational information of events provides value to our business. Nowadays, many emerging companies use **business model based on the On-Demand Economy**. In addition to that, the acquisition of information is getting massive thanks to technological and sociological trends like **social media** and **IoT**. **EDA is the natural paradigm for making use of this real-time information** and designing flexible systems able to adapt to the changes.



The Daitan Group [1] identifies different cases of companies making use of EDA: Uber, Deliveroo, Monzo Bank or Centrica among others. All of them share a **smart use of real-time information** provided by the customers, IoT networks, and movements in the market.

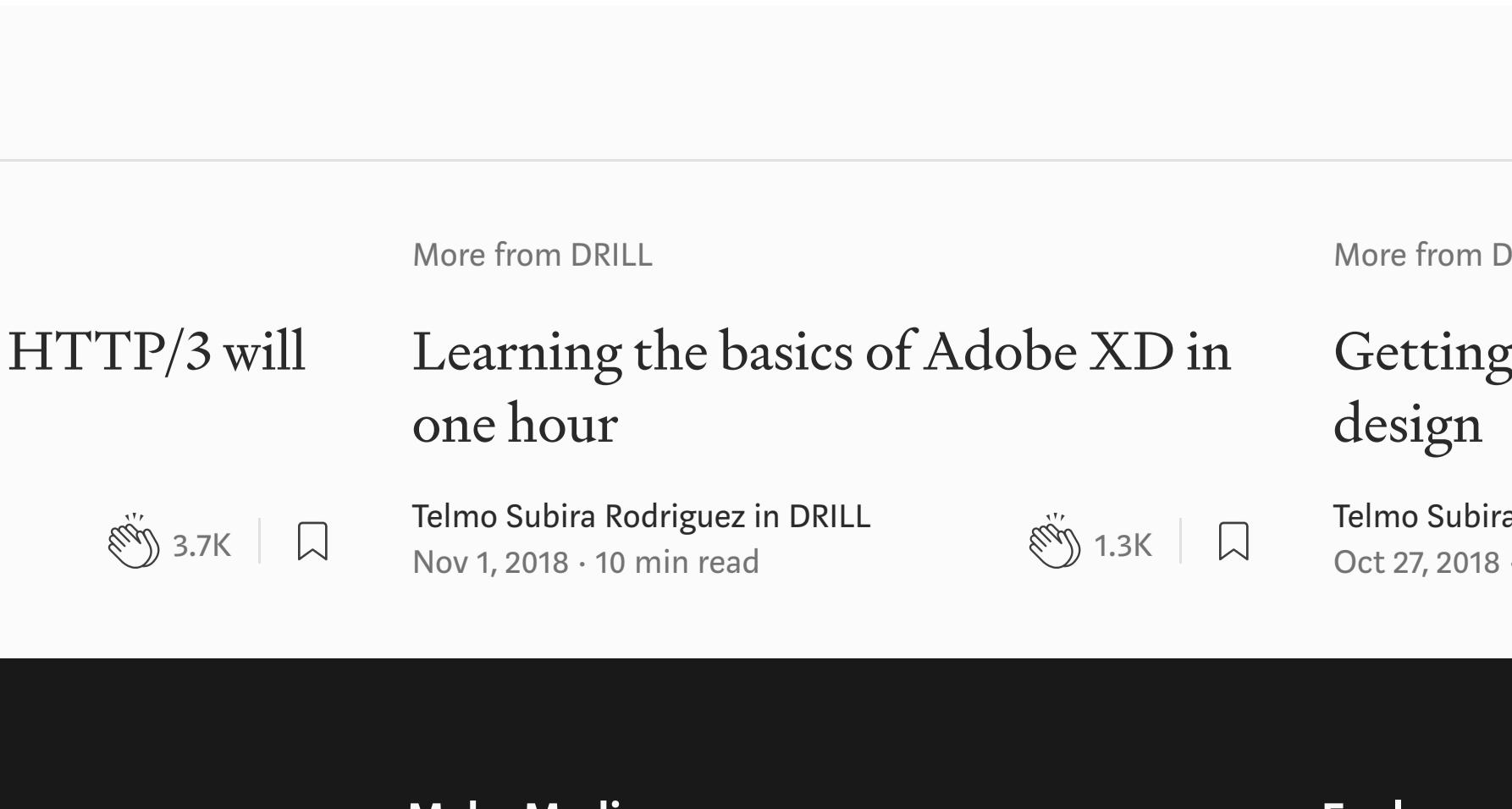
The traditional request-driven model and the event-driven model are complementary, and both of them have their own purposes. Digital companies are usually **called to specific business actions triggered by business situations**. Business situations are nothing more than the result of a logical test to an income of different events, and the identification of this situation creates an opportunity. These opportunities are mostly lost in a traditional request-driven model, which creates rigid and orchestrated architectures that are certainly very efficient when developing simple and invariant tasks. EDA, when **using continuous monitoring of incoming events**, gives the possibility of making real-time decisions. [2]



Once an event reaches the event bus, the flow of actions from the different services is not easy to predict and control. However, **every service is easily modifiable and replaceable** since the architecture is loosely tied. Every service is programmed to perform specific tasks, following different priorities or timing restrictions, and they will not be affected by the change in any other process. This way, long-term optimization and adaptation of the system are perfectly feasible.

Glue Reply UK [4] likens the Event-Driven Architecture for business to the concept of Brownian Motion in physics, which stands that the movement of a particle in a fluid is almost impossible to predict but easy to trace after the event. The path of the particle is the chain or group of actions performed, and the collisions of the particle are the events. **This simile refers to the non-structured system behavior in response to events**, delivering business results nonetheless.

Just as an off-topic, one can check a [Brownian motion simulation here](#). [6]



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