



Whitepaper Onboarding Service Providers

Claudio Franzetti and Thomas Puschmann

August 1st, 2019

Swiss Digital Trade Platform

Contents

Contents	i
1 Scope of Platform	1
1.1 Motivation	1
1.2 Essence of a platform	2
1.3 Value Proposition	3
1.4 Essential Providers	4
2 Technology	7
2.1 Overview	7
2.2 Target Architecture	7
2.3 Prerequisites for Providers	8
3 Road map	11
3.1 Marketing	11
3.2 Prototype	12
3.2.1 Hybrid Integration	12
3.2.2 Proof of technology	12
4 Conclusion	15
Bibliography	17

Chapter 1

Scope of Platform

...because of recent technological changes, companies need to rethink the balance between minds and machines, between products and platforms, and between the core and the crowd

*Andrew McAfee
Erik Brynjolfsson*

1.1 Motivation

In 2016, the Swiss Export Risk Insurance SERV has launched a digitalisation initiative together with Thomas Puschmann, Head of the Fintech Lab at the University of Zurich. SERV wanted to change the focus from its own requirements to the perspective of the exporter. What's the exporters' environment and user experience? In a first step we conducted structured interviews with typical stakeholders of the export eco-system. Indeed, it became quite clear that a modern export platform is highly desirable and that there was no effective alternative.

This finding was buttressed by the fact that it exists a nascent platform both in Singapore and in Hong-Kong. The Singaporean Platform advertises:

At its core, it represents a concerted effort to drive an industry-wide digital transformation to build a trade and logistics IT ecosystem which connects businesses, community systems and platforms and government systems.

Today, in modern enterprise IT, most organisations want to convert their business to one that is connected. A „connected business“ allows customers, partners, employees, internal, and external systems, as well as any other parties to deeply engage and smoothly collaborate with the enterprise. The cost of transactions between the enterprises reduces significantly, while the enterprise, its customers, and partners gain a competitive advantage over conventional enterprises.

Very advanced organisations have their connectivity strategy implemented and are looking for opportunities to connect – beyond B2B – to systems with distributed responsibilities.

With this initiative we would like to make connection possible and create an incentive to pursue the connectivity route for laggards.

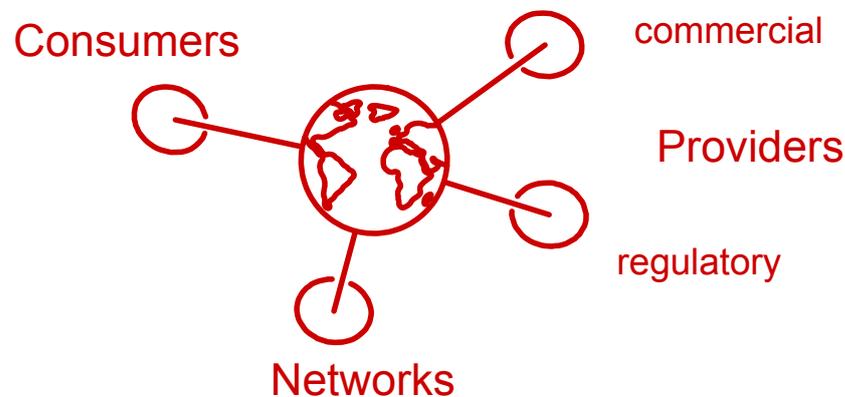


Figure 1.1: The SDTP as integration of consumers, provides and networks.

1.2 Essence of a platform

Platforms are underlying computer systems that provide services that allow consumers, entrepreneurs, businesses and the general public to connect, share resources or sell products.

There are three major types of platforms within the platform economy:

1. Transaction platforms, or digital matchmakers, serve as a type of virtual marketplace or meeting place for various groups of people. E.g. Amazon, Etsy and Facebook.
2. Innovation platforms provide technology frameworks to customers that can be adapted to individual use. Examples of innovation platform companies include Microsoft, Oracle and Salesforce.
3. Integration platform is a combination of the transaction and innovation platform, similar to online application marketplaces like the Apple App Store or Google Play.

An other characterisation is the following:

Digital platforms are complicated mixtures of software, hardware, operations, and networks. The key aspect is that they provide a set of shared techniques, technologies, and interfaces to a broad set of users who can build what they want on a stable substrate.

Fig. 1.2 shows the major roles of a marketplace as a platform, i.e. the place where supply and demand meets instantaneously and frictionless.

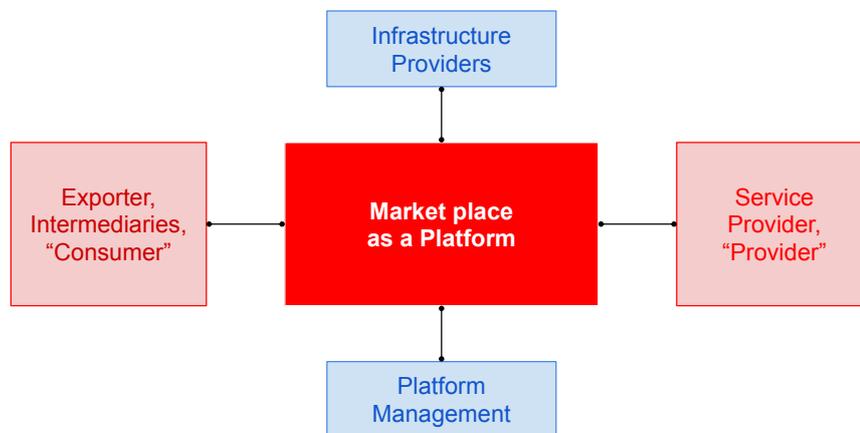


Figure 1.2: The major roles for the platform. In this paper we are mainly addressing the providers in the market.

1.3 Value Proposition

The main value propositions are higher turnover, lower cost and new business opportunities.

Today, there are the technical means to simplify massively the administrative and regulatory burden in trade. Trade is dominated by very old, albeit proven, procedures that have to be re-considered in the light of the present technologies. Simplification means lower cost, safer procedures and shorter time frames.

Integration platforms bring together consumers and service providers. Due to the openness of the system competitors will simultaneously be present in this virtual market. Thus, competition will foster benefits for consumers and press providers to better offerings. The second value proposition is lower cost for consumers and potentially higher volumes and market reach for providers.

Thirdly, new opportunities will arise through increased transparency and reach-ability of more business partners, also through additional networks of different geographic regions. Moreover, by augmenting the possible combinations of connections there will be new opportunities and new products.

1.4 Essential Providers

The platform wants to be a very lean infrastructure that allows to on-board, authenticate and have a single-sign-on through all services attached to it. Minimum services might be:

- Identification, authentication, notary
- Blockchain, certification
- Export Contract data model
- Data storing and transformation
- Financing
- Insuring
- Forwarding
- IoT / Tracking
- Export authorisation / Sanctions
- Customs declaration,
- Inspection.

We see the essential providers as *conditio sine qua non*, as a starting point. From here, the platform can evolve wherever the consumer, provider or management, in a cooperative spirit, will think it useful to go. Extended Services might be as follows:

- Risk management, Country data, Intelligence,
- KYC
- Legal opinion
- other platforms,
- others.

The evolutionary character of the platform forbids a narrow-minded road map of development. There is no such thing as a road map to evolution.

Chapter 2

Technology

2.1 Overview

Modern business IT has embraced the departure from monolithic applications to SOA and (micro-)services. The advantages are compelling: Multiple rates of change of services, independent life cycles, independent scalability, failure isolation, simplified external dependencies, flexibility to choose the best technology for the job, smaller risk of lock-in etc. Therefore, the next step is towards connectivity.

Business connectivity is strongly related to services and interfaces. This rests on a Service Oriented Architecture SOA and Application programming interfaces API. There have been several modes to realise this style as depicted below (Fig. 2.1). One crucial question is who controls processes and interactions (Bush, 2016). Modern IT has evolved into transcending the Enterprise Service Bus ESB into something that is best characterised by „API gateways“, „Managed APIs“ and „Microservices“ with potentially Service Meshes.

2.2 Target Architecture

The prototype shall prove both the technical feasibility of a bleeding edge application and give a first feeling for a platform. For the potential service provider it will define a set of prerequisites and standards to adhere to in order to be able to integrate easily. As providers will join at different points in time the platform must be able to onboard, reuse and expand given processes.

2.3. PREREQUISITES FOR PROVIDERS



As of writing some first ideas about the architecture of the platform and open-source offerings have come about.

The minimal set of infrastructure services are tentatively:

1. Presentation layer, front-end,
2. an integration platform as a service (iPaas) provider with:
 - a. API management and government,
 - b. Data transformer,
 - c. Process manager,
 - d. Identity and authentication provision,
 - e. Canned connectors,
 - f. Data service,
3. CRM,
4. Data management system,
5. Identity provider,
6. Blockchain ID and timestamp provider,
7. Deployment infrastructure,
8. Service catalogue and documentation.

All of this is available as open source, but its quality needs assessing.

2.3 Prerequisites for Providers

Providers expose services to be consumed by consumers, here exporters. In the following set we try to list the minimum technical capabilities and requirement to become a service provider to SDTP:

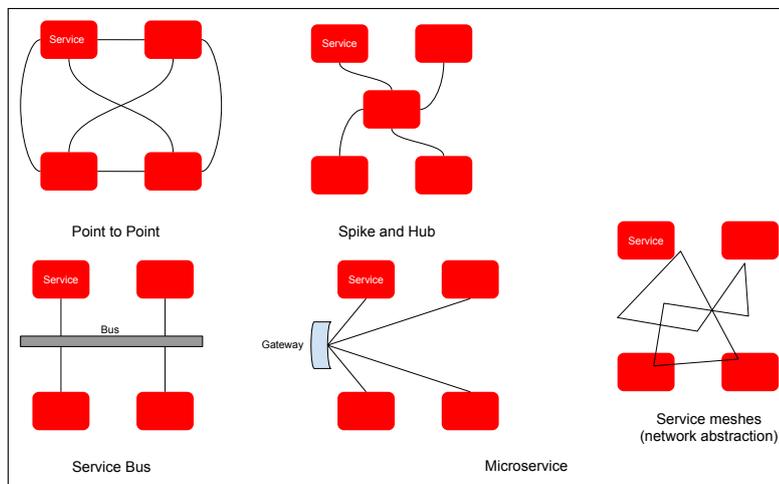


Figure 2.1: Different architectures. The main issue revolves around who controls the flow between endpoints.

- Finished product to end customers,
- description of use cases,
- self contained service with own data,
- description of process when interacting with external services,
- platform processes written in BPMN and BPEL,
- RESTful Application Programming Interfaces as „request-reply“
- API payload preferably as JSON,
- OpenAPI/Swagger description and documentation,
- OAuth 2.0 authentication service (OpenID Connect),
- a sandbox environment.

Participants to the platform in the role as consumers should help structure processes or even be able to design processes themselves as (non-technical) „citizens“.

Chapter 3

Road map

This is not the road map of the platform development but the path of the initiative. Therefore, we do not contradict our assertions of page 5.

3.1 Marketing

The goal of the association „Swiss Digital Trade Platform“ is primarily to have a prototype developed for which it has to seek the appropriate financing.

In the early stage two issues are important: (1) attract service providers to the platform initiative that have a strategic scope in connectivity. These can shape and coordinate the technical and business prerequisites for the architecture. And (2) attract potential consumers of the platform in order to minimise the uncertainty of the viability, financial and general, of the platform. These kind of member are best integrated by having them shape processes and artefacts like documents.

In a first step members should contribute names of potential providers for specific functions that are needed to start with a comprehensive prototype.

The tools to be used are primarily personal contacts and targeted send-outs of concise papers and presentations.

The website of SDTP should be used to onboard new members and provide an exchange hub for the stakeholders.

3.2 Prototype

3.2.1 Hybrid Integration

According to Gartner the most sensible approach today is the hybrid solution. By their definition (Pezzini, 2017), the hybrid integration platform (HIP) is a framework of *on-premises* and *cloud-based* integration and governance capabilities that enables integration specialists and nonspecialists to support a wide range of integration use cases. Pezzini (2017) writes:

An organisation's HIP is usually implemented by assembling a variety of technology building blocks, from one or more providers, which are managed as a cohesive, federated and integrated whole. Responsibility for HIP management is well-defined.

Yet, iSaaS is a nascent technology. According to Gartner, many established and emerging providers are trying to grab the opportunity and figure out what a viable business model might be.

3.2.2 Proof of technology

Before we will prototype to a meaningful extent, we will perform a Proof of Technology. There are several potential offerings, providers and technologies in a vibrant and not yet consolidated market for service integration. There are variants that are cloud-native, on-premise or hybrid. Reaching a solid opinion on tools to use, deployability, manageability etc. is of paramount importance. Discussing both with providers of technology and potential service providers may be extremely important.

Technology providers may be classified into two or three categories, depending on features into (According to Gartner, a software consultancy firm):

- Integration Platform as a Service,
- Closed-Source Application Integration Suites,
- Open-Source Application Integration Suites.

Different Supplier are listed in Tab. 3.1. In light of our start-up project with scarce resources, especially financial, it seems worthwhile to start with open-source integration on a dedicated test server.

The technology should prove that it can handle the generic use case, be secure and readily scalable. Thus following test conditions:

Table 3.1: Three biggest Technology Provides by category (Thoo *et al.*, 2018).

IPaaS	Closed Integration Suit	Open Integration Suit
Informatica (Intelligent Cloud Services)	IBM (WebSphere Enterprise Service Bus)	WSO2 (Enterprise Integrator)
Oracle (Integration Cloud Service)	Oracle (Service Bus)	Red Hat (JBoss Fuse)
Dell Boomi (AtomSphere)	Microsoft (BizTalk)	Fiorano (Integration Platform)

1. on-boarding of users via
2. an UI with login for a) service providers and b) consumers (say exporters)
3. profiles and a minimal personal space for these roles,
4. an authentication, identification and single-sign-on,
5. two services (APIs) from two different service providers,
6. API management and documentation facility,
7. one very simple process linking consumers to the two APIs.

After having successfully tested one or several offers and established their scalability and security, a prototype will be developed. The prototype should be export specific and have several real services running. In addition, the deployability and the governance become more important. The prototype should be the kernel of the evolution and go into production if found fit.

Chapter 4

Conclusion

We are deeply convinced that there is a business case for a digital trade platform for Switzerland. There are some service providers that have a connectivity strategy enabling the integration into a platform. There are consumers ready to streamline export processes and gain time and security by using more advanced digital offerings. The government and its agencies are also deemed to connectivity and have such project ongoing.

Moreover, the technology is very much geared towards connectivity, cloud, social and mobile. The offering is too rich waiting for a consolidation in the future.

Therefore, all ingredients for a the Swiss Digital Trade Platform are given.

The running cost and payback of investments should be borne by fees of service providers for their opportunities and subscription fees of consumers.

We are happy to discuss we you as a potential service provider both technical and business issues. This is very much in line with the requirement to have an open platform.

Please feel free to contact us at office@swissdigitaltradeplatform.net or register at forum.swissdigitaltradeplatform.net for discussion.

Bibliography

- Bush, D. (2016). Business process management in a "microservices world". *Red Hat Developer*.
<https://developers.redhat.com/blog/2016/10/10/business-process-management-in-a-microservices-world/>.
- McAfee, A. und Brynjolfsson, E. (2017). *Machine, platform, crowd : harnessing our digital future*. W.W. Norton & Company, New York.
- Pezzini, M. (2017). Innovation Insight for Hybrid Integration Platforms. Technical report, Gartner, Stamford, Connecticut.
- Thoo, E., Pezzini, M., Guttridge, K., Zakheim, B., und Bhullar, B. (2018). Market Guide for Application Integration Platforms. Technical report, Gartner, Stamford, Connecticut.

About the Authors



Claudio Franzetti was Chief Risk and Finance Officer of Swiss Export Risk Insurance in Zurich with responsibilities for IT. Prior to that he held senior positions with Aon Resolution AG, was Head of Group Credit Portfolio Management and Managing Director of Deutsche Bank in Frankfurt, Head of Risk Management and Controlling of Swiss Re's investment division and senior consultant with iris AG in Zurich. Before entering the finance industry he started as research engineer with Brown Boveri & Cie., then Asea Brown Boveri, in Baden in the field of computational fluid dynamics.



Thomas Puschmann has spent more than two decades at the nexus of technology and business in both science and business. He currently is Founder and Director of the Swiss FinTech Innovation Lab at the University of Zurich, Head of Switzerland's first Green & Sustainable Digital Finance & FinTech Research Initiative, Co-Founder of the Association Swiss FinTech Innovations, Member of the Swiss Innovation Council Innosuisse and President of the Swiss Digital Trade Platform Association. He serves as an advisor for many strategic national and international initiatives and is an advisory board member of various institutions to foster innovation and develop an innovation and start-up ecosystem.