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# Institutional Legitimacy and Digital Public Cross-Border Service Delivery Between Denmark/Sweden and Denmark/Germany

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## Abstract

The aim of this paper is to investigate the role of institutional legitimacy in the development and delivery of digital public cross-border services in the EU. The digital public cross-border services between Denmark/Sweden and Denmark/Germany are the test cases that are investigated. Empirical data was gathered from two organizations namely, Region Sønderjylland – Schleswig and the Øresund direkt Sweden. Both organizations are informational and advisory services that promote public digital cross-border services at the Danish/German and Danish/Swedish border. The findings point to institutional legitimacy promoting the development and delivery of national digital public infrastructure and service delivery. The findings also points to institutional legitimacy acting as a barrier to the development and delivery of digital public infrastructure and services across border.

**Keywords:** e-government, cross-border services, institutional legitimacy, internationalization, e-services.

## 1 Introduction

This paper provides an insight on how institutional legitimacy affects the adoption of digital cross-border public service initiatives, enshrined in

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EU e-Government policies, by the member states. The concept of institutional legitimacy is derived from the institutional theory as proposed by R.W. Scott [1]. He identifies institutions as regulations, norms and schema (*ibid*). These concepts serve as the basis of the institutional analysis in this paper. Nevertheless, institutional legitimacy is the basis or reason why entities adopt an institutional structure, set-up or framework [2]. This implies that entities are likely to ignore or an institutional structure if it has no basis of legitimacy. It has been the vision of the EU to enable a “seamless cross-border public digital service across the EU”. The aspects of the digital public service in focus has been the delivery of Government-to-Business (G2B) and Government-to-Citizen (G2C) e-Services. The vision is based on the need to facilitate hassle free movement of businesses and Citizens within the EU. This vision was first promoted in the EU e-Government policy of 2006. However, in 2018, this vision is yet to materialize.

The main reasons for the non-realization of this vision is not very obvious. However, there is a possibility that the vision promoted by the EU may lack institutional legitimacy with the member states. This implies that member states rely more on their national institutions which backs the delivery of public digital cross-border services than on EU institutions that backs the delivery of these services. If this is the case, it would imply that the EU institutions backing this vision is either not fully accepted by the member states or member states are finding it difficult to merge the ideas from EU institutions with that of their national institutions. Either way, one could say that the EU institution backing the vision lacks legitimacy at the national level. Some of the relevant institutions backing this vision include EU laws, directives and policies. Some of the most relevant institutions are the EU e-government policies, eIDAS regulation, Single Digital Gateway Regulations etc.

Institutional legitimacy has an influence on the current state of IT systems that deliver public services in each member state. Currently, different EU member states run different IT systems. Most of these IT systems are not interoperable with one another [3]. Furthermore, the design, implementation and service delivery processes via the national public digital service in each country differs. The design of the IT system and the service processes produced in these systems are enabled and backed by national laws, national norms, and their culturally cognitive way of doing things. Hence, the national IT systems and the service delivery processes are institutionally legitimate. Hence, they are accepted by the respective member states. The implication of this setup is that most EU citizens do not have direct access to the IT systems of other member states, for the purpose of registering their business from abroad or commuting. In order to get access to such IT systems, they have to

follow an offline procedure to confirm their identity process and confirm the relevant documentation. In most cases, they have to physically travel to such a member state and become residents before they could get access to such IT systems. Based on this observation, one would say that the institutions backing the vision of the EU for a seamless cross border public digital service delivery may not be recognized as legitimate in the member states. Hence, the implementation of National IT systems that deliver digital public services, based on the vision of the EU, might be problematic.

Without empirical evidence, the influence of institutional legitimacy on the seamless delivery of public digital services across border will be a supposition. Hence the question this paper seeks to answer is, “Does institutional legitimacy affect how EU member states adopt and implement digital public cross border services?” In order to respond to this question, an investigation was conducted on the delivery of cross-border digital public services between the two major border regions in Denmark: Southern Jutland (Denmark) – Schleswig (Germany) and Copenhagen Capital Region (Denmark) – Skåne (Sweden). In order to probe more into the case, an interview was conducted with 2 cross border informational and advisory services to identify the challenges facing the uptake of cross-border services in the EU. These were Øresunddirekt Sweden, dealing with the Danish/Swedish cross border services and the The Region Sønderjylland – Schleswig, dealing with the Danish/German cross-border services. The theoretical basis for this paper is the Institutional Theory. The findings of this paper indicates that there are Institutional legitimacy issues which impedes the implementation of cross border services in some EU member states. The paper outline are as follows. The introduction is followed the methodology of the paper and an overview of the Danish/German and Danish/Swedish cross-border relations. The fourth section describes the state of digital public services in the EU. In this section the institutional (organizational) arrangement of how public digital services are delivered in Denmark, Germany and Sweden are is described. That section is followed by, the theoretical framework, the overview of EU institutions governing digital cross-border service delivery, the findings, discussion and the conclusion of the paper.

## **2 Methodology**

This paper was designed as an explorative qualitative study. The approach is a combination of an induction process followed by a theoretical grounding process where relevant theories that could explain the outcome were investigated. It is the theory identified in the grounding process, which serves

as the framework for explaining the phenomenon being investigated. This approach was adopted because there was no pre-insight into issues surrounding digital cross-border services.

Investigations were conducted on two public digital cross-border cases. These cases were the Danish/German and Danish/Swedish digital cross-border services. Unstructured interviews were conducted with two informational and advisory service providers, who collaborate with national governments and regional bodies to facilitate digital public cross border services for cross-border labor mobility and cross-border business operations in both cross border cases. The respondents were the officials from Region Sønderjylland – Schleswig and the Øresund direkt Sweden representing the Danish/German and the Danish/Swedish cross-border services respectively.

The interviews were transcribed and read through. Content analysis was then used to identify the main thoughts presented in both interviews and where there could be similarities or differences in both cases. This was followed by documentary study to identify the theories that explains the outcome.

### **3 The State of Public Digital Services in the EU**

Digital public services are services that are digitally produced, transmitted and delivered via the World Wide Web by public agencies to citizens, businesses, other government agencies and their employees. Digital public services are advantageous, both on the supply and demand side of the governance ecosystem. On the supply side, the government agency saves cost and achieves operational, task and process efficiency in the service delivery process. On the demand side, the transaction cost incurred by the client, in their transactions with public authorities, is reduced and the client saves time in facilitating either a search for information, performance of a transaction or networking activities. These advantages can only be said to exist when comparing digital service delivery to offline service delivery operations offered by public agencies.

Digital public services also enables e-governance. These services enable public agencies to manage various sectors and sub-sectors of the economy digitally. As such, digital public services also serve as an element of e-government systems. These services serve as the interface between government agencies and their clients. In this case the client could either citizens, businesses, other government agencies or their employees. In the context of this paper, the client are the citizens and businesses.

In the EU, digital public services are delivered under different institutional (organizational) arrangements; its uptake varies across the continent; and it is

delivered across border as well. Since Denmark, Sweden and Germany are the cases considered in this paper, they will be used to describe examples of some of the institutional arrangements for the delivery of digital public services in the EU. This is followed by an overall picture of the uptake of digital public services in the EU and how these services are delivered across border.

### **3.1 Public Digital Services Delivery in Denmark Germany and Sweden**

- **Digital public service in Denmark:** The Danish governmental structure consists of the national, regional and local governments. There are 5 regions and 98 municipalities. The national government is a unitary parliamentary form of government. At the national level, the Ministry of Finance leads E-government initiatives in Denmark. However, the delivery of digital G2B and G2C services in Denmark is coordinated by a steering committee, consisting of representatives from the national, regional and municipal governments [4]. The committee coordinates the efforts on digitization across the public sector. Their decisions are implemented by the agency for digitalization. Denmark has two centralized platforms, one for G2B services and one for G2C services as seen in the Table 1. The platforms are designed based on the citizen centric approach.

**Table 1** G2B and G2C delivery pattern in Denmark

	G2C	G2B
Platform	www.borger.dk	www.virk.dk
Platform operators	Jointly operated by national, regional and Municipal authorities	Danish Business Authority
Infrastructure developers	Agency for Digitalization	Agency for digitalization
Sign on solution	NemLog-in	NemLog-in
EIdentity/authentication	NemID	NemID
Number of major services	17	8
Access approach	Digital self-service (citizen centric-approach)	Digital self-service (citizen centric approach)
Language	Danish and English	Danish and English
Supporting languages	Non	German and Polish
Type of service delivery	Centralized service delivery	Centralized service delivery

Sources: [4, 5]

Users utilize these platforms via the digital self-service approach. These platforms are single entry portals with a single sign-on solution called the NemID-login. The NemID is digital signature, consisting of user name and password. This solution is also available for the disabled. The Danish platforms are designed based on the Once-Only-Principle, which implies that user information is provided once. They also host and provide access to e-forms and e-documents. The portals are only accessible in Danish and English. However, certain e-forms on the G2B portal are available in German and Polish.

The G2B and G2C platforms host both horizontal (all inclusive) and vertical (sector specific) services present in Denmark. The services provided on the G2C platforms are classified into 17 categories. These are, family and children, School and education, Health and disease, Internet and security, Older generation, Handicap, Work, employment benefit/holiday, Economy/SU, Pension/early retirement, Housing and relocation, Environment and energy, Traffic, transport, travel, Danes Abroad, Foreigners in Denmark, Society and rights, Police, Judiciary, defense, and Culture and leisure [5]. The G2B services are classified into 8 categories. These are, Social contributions for employees; Corporate tax: declaration, notification; VAT: declaration, notification; Registration of a new company; Submission of data to statistical offices; Customs declarations; Environment-related permits (incl. reporting); and Public procurement [4].

- **Digital public services in Sweden:** Sweden has a similar system of government as Denmark. It is a parliamentary democracy and it consists of the national government, 20 counties (regions) and 290 municipalities [6]. E-government policies, at the national level, are coordinated by the Ministry of Enterprise and Innovation, while the Swedish National Financial Management Authority handles the promotion of digital collaboration between the agencies [7]. At the lower tiers of government, the county councils and municipalities devise their respective e-government policies, while the Swedish association of local authorities and regions (SKL) coordinate the implementation of these policies [6]. The governance tier separation in policy formulation and implementation is based on the local self-government principle that exists in Sweden (*ibid*). However, to facilitate digital collaboration and interoperability, the Swedes have a programme on e-collaboration. The programme includes the aforementioned bodies and other relevant bodies involved in the national e-government delegation.

Hence, the Swedish approach, to the delivery of digital public services, is the decentralized approach. This is evident in the delivery of their digital G2C and G2B services. G2C services are offered on different platforms that are owned and operated by different government agencies. Counties and municipal agencies own their own platform.

The G2B services are delivered on a single portal, with links to the different public service providers as represented in the Table 2. It is a centralized approach. Agencies providing their services on the G2B platform include

**Table 2** G2B and G2C delivery pattern in Sweden

	G2C	G2B
Platform	Different government agencies, county and municipal agencies own their own platform	www.verksam.se
Platform operators	Individual government agencies, county and municipal agencies own their own platform	The Swedish Companies Registration Office
Infrastructure developers	Individual government agencies, county and municipal agencies own their own platform	–
Sign on solution	Varied, it depends on the eID provider	Varied, it depends on the eID provider
EIdentity/Authentication	Bankid, mobile BankId, Telia eID, Freja eID, AB Svenska pass, Inera AB and Huddinge municipality	Bankid, Mobile bankID and telia eID
Eidentify/Authentication agency	Digital management authority	Digital management authority
Number of major services		6
Access approach	Digital self-service (citizen centric)	Digital self-service (citizen centric approach)
Language	Swedish and English	Swedish and English
Supporting languages	Varied	Varied
Type of service delivery	Decentralized service delivery	Centralized and decentralized service delivery

Sources: [7, 8]

The Swedish Employment Agency, the Swedish Companies Registration Office (who is the platform operator), the Swedish Tax Agency and the Swedish Agency for Growth. There are 6 major category of services provided on the G2B platform. These includes, company registration, Tax related issues, changing company data, creating a business plan, searching company names and links to checklist on how to start a company [9].

The G2C platforms and the G2B platform are supported with multiple sign on solutions. This is because of the existence of multiple eIDs in Sweden. These eIDs are mostly delivered by private sector who has to be approved and granted trust levels by the Swedish, Digital management Authority [8]. As a result, different public service providers provide access to their services using some of these eID providers. The most common eID is the BankID. In the case of individual digital G2B service delivery, some the public service providers provide access to more eID solutions than the one on the centralized portal.

The main language on the platforms is Swedish but in some cases there is an English version, as in the case of the centralized G2B platform. But the list of supporting languages and how they are delivered, vary from agency to agency. In some cases, the web content are available in a list of EU and non-EU languages; while in other cases there is a Google translate function.

- **Digital public services in Germany:** Germany is a federal parliamentary republic. The government structure is made up of the national (federal) level and the 16 states (regions). These states have substantial autonomy, based on their regional constitutions, with respect to how it is organized and governed. 13 of these states are area-states, while three of them are city-states. The city-states are made up of administrative divisions. While the area states are further divided into lower tiers of administrations, which in descending order include, districts and municipalities. The area states decide on the sub-divisions within the sub tiers of government.

The federal and state governments control their separate E-government initiatives. At the federal level, e-government policies are promoted, coordinated and implemented by the ministry of Interior [10]. The federal IT steering group and the federal government commissioner for Information technology provide support to this ministry. The commissioner is the IT agency in charge of the development of the architecture, standards and the provision of federal IT infrastructure (*ibid*). The German federal office

of administration and the individual government agencies develop the infrastructure. The states and municipalities develop their e-government policies and implement the policies by themselves. To ensure cooperation and technical coordination between the states and the federal government, an IT planning council was created (*ibid*).

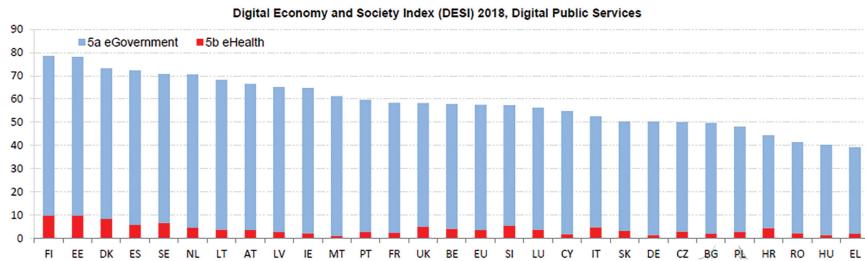
At the federal level, G2C and G2B services are delivered using the hybrid (centralized and decentralized) approach to service delivery. In the centralized approach, G2B and G2C informational services are aggregated on a platform called [www.bund.de](http://www.bund.de). The platform hosts 101 G2B and G2C services. It provides introductory information about these services, the agency hosting the service and the web-link to the agency providing the service. The portal is currently available in German, the English version is under construction. In the decentralized approach, some of the federal agencies deliver G2B and G2C digital services. An example is the Electronic tax return system (ELSTER) [11]. Access to the portal is via the German eID. Different regions and municipalities redirect users to this system. Another example is the online pension system (see [12] and the federal employment agency.

On most platforms provided by some of the German federal agencies, the use of the German eID is not mandatory. Examples include some services offered by the business registration agency, the digital procurement and the tax authority. Users are required to register in order to access these platforms. Furthermore, most information on the public service portals are in German.

At the state and municipal level, the situation varies. German states provide G2B and G2C services online. The majority of the services are informational services. But states such as Saxony-Anhalt, Schleswig-Holstein and Saarland, provide access to online tax forms and access to ELSTER as an example (see [13]). The state of Berlin also provides access a self-service platform for their G2B and G2C services. A similar trend can be seen in the lower tiers of government. The problem however is that a great deal of G2B and G2C services in Germany are offline. And the once-only principle is not a part of the online systems.

### **3.2 The Uptake of Digital Public Services in the EU**

As mentioned in the previous section, digital public services are elements of e-government systems. It is the aspect of the e-government ecosystem that enables e-governance or the electronic function of government. In the EU,



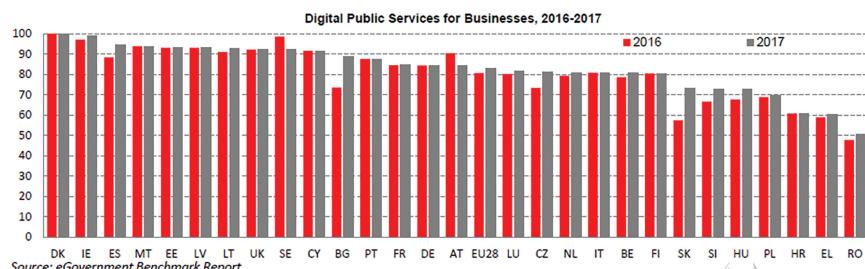
**Figure 1** Digital Economy and Society index (DESI), 2018 Digital Public Services [14].

almost all member states deliver varied levels of e-government services as seen in the figure below. This implies that all EU member states also provide varied levels of digital public services to their citizens. As seen in the Figure 1, countries that deliver most governmental services digitally include Estonia, Finland, Denmark, Sweden, Spain and the Netherlands. However, the uptake of public digital services in the EU is 58% [14]. That is on the average side.

In the EU, the possibility of delivering digital public services are high. This is because of the medium to high uptake of e-government in most EU member states as seen in the Figure 1.

Due to the level of adoption of e-government, 58% of EU citizens now have access to digital public services in the EU [14]. 53% of these services are delivered via pre-filled forms and 84% of these citizens actually complete each online process for digital G2C and digital G2B services (*ibid*).

However, the uptake of exclusive digital G2B services within the EU is very high. As seen in the Figure 2, little more than 80 percent of G2B services in the EU are Digital. EU member states such as Denmark, Spain, Ireland, Malta, Estonia, Latvia and Lithuania deliver more than 90% of their G2B services online [14]. These services are delivered to both local residents and foreign users. From a continental perspective, 87% of EU citizens use G2B services (*ibid*).



**Figure 2** Digital Public services for Businesses, 2016–2017 [14].

### **3.3 The Nature of Cross-Border Digital Public Services in the EU**

In the previous sub-section, it is seen that most member states are working on expanding e-governance by delivering more G2B and G2C services. They also allow eligible EU citizen, from other EU member states, to use these services, but not without pre-conditions. As examples, in certain EU countries, such as Lithuania and Estonia etc, one needs to show a proof of residency before they can register their business. Hence, EU citizens who have fulfilled the requirements laid down by such a member state can use the IT systems of these member states. These requirements could include the acquisition of national e-identity and e-authentication credentials needed for the access of the public e-services in the target countries.

Furthermore, there are examples in the EU where member states collaborate to facilitate digital cross-border service delivery. Howbeit in a limited scope and not seamless. An example is the arrangement between Estonia, Lithuania, Belgium and Finland. In this arrangement, Lithuanians, Belgians, the Finns and the Latvians can access the Estonian Digital public G2B services using their national credentials. There is also a cross-border effort between the Benelux countries to facilitate cross-border ECMR solutions, which is a G2B service. However, despite these initiatives among others, it is far from the vision of achieving a seamless cross border public digital service delivery.

Nevertheless, the EU has a keen towards solving this problem. The initial approach was to coordinate the efforts of the member states, while the member state handle the implementation process. However, since the EU has evolved from coordinating and setting up institutional frameworks to the provision of some stimulus to the vision. In the first part of this century, the EU adopted different technical and institutional efforts to remedy the situation. The Institutions are enshrined in the EU e-Government policies, and eIDAS regulation among others. The technical efforts has been facilitated by EU projects that is supported by the Connecting Europe Facility (CEF) and other EU projects such as The-Once-Only-Principle (TOOP) and the Stakeholder-Community-Once-Only-Principle for Citizens (SCOOP) (see [15]). CEF, influenced by the EU e-government policies, have developed seven building blocks namely, e-Identity, e-Signature, e-Delivery, e-Invoicing, e-Translation, e-Archiving and Context broker (see [16]). These building blocks serve as common technical standards that ought to be adopted and integrated in the information systems of member states to facilitate a seamless cross-border public digital service delivery. The current building block, implemented, is the e-Identity. The EU regulation No. 910/2014 backs the adoption of the e-Identity building block. This regulation is the Electronic Identification and

Trust Services (eIDAS) regulation. The aim of the regulation was to provide a regulatory environment and guidelines for facilitating the delivery of trust and identity services in the IT systems of the member states. Chapter 2, article 6 of the eIDAS regulations mandates mutual recognition of e-Identities (ID) of EU member states. This would be useful to EU citizens and businesses, as they will not have to fulfil the national identity and trust requirements of the member state they intend operate. This regulation was to be implemented by 29th September, 2018. Currently most member states are yet to provide mutual recognition of their eIDs with one another. In addition, this in part is due to technical challenges driven by national institutions. This is because the national institution provides the requirement specifications for the national technical system, which as mentioned earlier are incompatible.

Although the EU and her member states are keen towards the delivery of cross border services, this vision has yet to materialize.

#### **4 The Danish/Swedish and Danish/German Cross Border Relationship**

The two major border regions in Denmark are Southern Jutland (Denmark) – Schleswig (Germany) and Copenhagen Capital Region (Denmark) – Skåne (Sweden). These two regions are very different with regard to history and the kinds of trans-border transactions taking place. The Copenhagen Capital Region is a high-density area separated from Sweden by Øresund. There is in this area quite a bit of commuting between the two countries. Some Danish citizens have moved to Sweden, where housing is cheaper and commute to Copenhagen every day. Some Swedes commute to Copenhagen as well. There is also some traffic in the opposite way direction, but in a much smaller scale. Since the Øresund Bridge connecting Denmark and Sweden opened in year 2000 the level of traffic has grown substantially. In 2016, 13,800 people commuted across Øresund every day. 93% commute from Sweden to Denmark, and 7% from Denmark to Sweden [17]. Therefore, there is a high demand for cross border public services. These relate to taxation, social benefits, health, and pensions.

The Danish-German border is completely different. The border is located in a rural area and the population density is low at both sites of the border. Due to historical changes in the borderline, there is a small German community on the Danish site, and a small Danish community on the German site. The border has been completely open from 2001, but in 2016, a new temporary border control was established. Also on this border, the commuting goes mainly

into Denmark. In 2012 there were around 7,000 commuters coming from Germany and around 1,000 going in the opposite direction. The commuters are mainly Germans attracted by higher salary levels in Denmark [18]. There is a substantial border trade. Many people from the Southern part of Denmark goes to Germany for shopping and many Danish shops are established on the German side of the border to get a share of this trade and avoid Danish taxes. In addition, other kinds of Danish companies are established across the border due to taxation and various kinds of regulation. This includes especially companies dealing with road transport.

## **5 Theoretical Background**

The theoretical foundation of this paper is anchored on the role of legitimacy in the adoption and implementation of EU e-government cross border initiatives in EU member states. The concept of legitimacy as used in this paper is defined as the overall view of the appropriate nature of an action performed by an entity within a social construction governed by norm, beliefs, definitions and obligations (see [19]). This concept provides the foundation for dealing with the question presented in this paper. The concept of legitimacy is not an orphan; rather it has its roots in several social theories including obvious theories such as Institutional theory and legitimacy theory. Legitimacy theory enables one to understand why an organization is considered legitimate within a society based on how they function within the confines and norms of the society or sector in which they operate (See [20, 21]. Organizational legitimacy is determined not only by the action of the organization but also on the perception of stakeholders who relate to the organization [20]. The organizational approach not adopted because it constrained the concept of legitimacy only to organizations. Institutional theory, on the other hand, provides a broader theory. It provides an insight into how rules, values, norms, schemes and obligations serve as the expected course of action for social behavior [22]. Institutional theory transcends formal organizations behavior and is applicable to informal organizations as well. Therefore, it does encompass a great deal of legitimacy theory. The emphasis of the discussions will not be on organizations, therefore the legitimacy theory bit is not considered. Within the framework of Institutional theory, one can discuss and analyze institutions within a national and supranational context. In Institutional theory legitimacy is the basis for entities to adopt an institutional structure (see [2]). According to Meyer & Rowan (1977), entities seek legitimacy for their survival. This is an idea shared with legitimacy theory [21]. This implies that an institution that

has no basis of legitimacy is likely to be adopted and adapted to suit existing legitimate institutions or rejected.

A challenge that could impede the discussion of legitimacy from an institutional context, is the fact that there is no universal definition for “institution”. To weather this challenge, the definition of an institution and the theoretical approach by W.R. Scott is adopted. He defines an institution as “*consisting of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life*” [1]. Based on this definition, he has developed an institutional framework, denoting formal institutions (regulative institutions) and informal institutions (normative and cognitive institutions). Regulative institutions are governed by formal rules, while normative and cognitive institutions are governed by norms and schemas (thought or behavior patterns) respectively. Regulative institutions are enforced by coercion. EU regulations and member state regulations are regulative institutions. Failure to abide by these regulative institutions incur sanctions. Normative institutions are enforced by norms. EU policies and directives as well as those of member states are normative institutions. They are enforced via binding expectations between the EU and the member states. The different actors or stakeholders that mimic one another enforce cognitive institutions [23]. The assumptions, thought and behavioral pattern, governing the vision and the implementation of seamless cross-border digital public services in the EU are cognitive institutions. Furthermore, similar parameters governing the implementation of national digital public delivery are cognitive institutions.

Each of these institutions or pillars of institutions among other attributes possess a basis of legitimacy. Each pillar of institution are legitimate for the following reasons. Regulative institutions legally sanctioned; normative institutions are morally governed while cognitive institutions are culturally supported. It is based on the framework of Scott that the concept of legitimacy is analyzed in this paper.

## 5.1 The Research Gap

Institutional theory is widely used in the research into e-governance. This is mostly because governments are often seen as an eco-system of institutions. These includes formal and informal institutions. Such research are often on the adoption, evaluation or challenges facing e-governmental task, transactional and network oriented activities (see examples [24–26]). There are also research along similar lines that are EU centric (see examples [27, 28]). There have

also been research into institutional approaches to E-government using other theoretical approaches other than institutional theory (see examples [29, 30]).

However, despite the existence of these, among other similar research there is a research gap. Institutional theory has not been used to analyze either the institutions or issues related to the delivery of cross-border digital services in the EU. Research into the delivery of cross-border public digital services in the EU is very limited. However, there are a handful related research activities of The-Once-Only-Principle project (TOOP) (see [3]). Therefore, the usage of Institutional theory to research into the delivery of cross-border digital services in this paper is in a Greenfield area. It will provide an alternative perspective on some of the challenges that may be impeding against the seamless implementation of cross-border digital services in the EU.

## **6 Institutional Foundation of Eu E-Government and Cross-Border Policies**

Before discussing the findings of the paper, it was necessary to provide an overview on the institutional foundation of EU E-Government and cross border policies. This was necessary so that the reader could have an idea to the EU institution that is referred to and what it entails. In 2006, the EU launched the I2010 E-Government action plan aimed at promoting job creation and an information society in the EU [31]. It is within this plan that the need for facilitating a seamless cross-border digital public solution was envisioned. This starting point for this vision was the identification of enablers for creating cross-border solutions. These enablers included an interoperable Electronic Identity Management (eIDM); Electronic document authentication and electronic archiving. These enablers were norms. To build upon these normative measures, in 2009, the Malmo ministerial declaration on e-government was approved [32]. One of the EU policy priorities meant to be achieved in 2015 included the facilitation of mobility within the single market, enabled by a seamless cross-border e-government services. The e-government services were to serve both businesses and citizens.

More specific outline for the implementation of cross-border e-government services were enshrined in the e-Government action plan (2011–2015), two years after the Malmo declaration [33]. The objectives of the plan was based on the aforementioned 2009, Malmo declaration. In the plan, national governments of EU member state were identified as the main actor in the development of the infrastructure. While the EU commission will coordinate the efforts continentally. However, in cases where the commission and the

member states jointly commit resources to develop the infrastructure, then the EU will lead the effort. The development of the institutional set up via regulations, standards, and frameworks to ensure interoperability was to be established by the EU. However, the member states were mandated to ensure the interoperability of the infrastructure in the EU member states, and provide means for electronic identify and electronic signatures in their services.

In 2015, the EU launched the Single Digital Market strategy. The facilitation of public digital cross-border services was seen as one of the enablers towards the realization of the Single Digital Market. In this strategy, the idea of the seamless cross-border service delivery was defined. The crucial aspects of the idea was the interoperability of national systems, the implementation of the Once-Only-Principle and the presence of a continental single digital gateway to the services. Based on these ideas, a regulative institution emerged called the Single Digital gateway Regulation. Article 2 of this regulation establishes the single digital gateway.

However, before the Single Digital gateway regulation was passed by the EU parliament, in 2016, the EU updated the e-Government action plan (2016–2020) [34]. The aim of the action plan was to facilitate cross-border synergies in the development of cross-border e services. One would say that the ideas promoted in the Single digital market strategy were used to update the new action plan. The vision of the plan was that:

*“By 2020, public administrations and public institutions in the European Union should be open, efficient and inclusive, providing borderless, personalized, user-friendly, end-to-end digital public services to all citizens and businesses in the EU”* (ibid).

The public digital Cross-border services were expected to be:

- **Digital-by-default:** This implies that the public service should be delivered digitally, either on a centralized or decentralized platform.
- **Guided by the Once-Only-Principle:** This implies that citizens and businesses are should be able to provide their information once to the national digital public administration platforms via a single digital gateway. The information should be reusable by other national public administration systems without the business or citizen having to provide it again.
- **Inclusive and assessable:** This implies that the digital public services should be available for everyone. This would include the elderly and disabled people.

- **Open and transparent:** This implies that public administrations should be able to share information and data between themselves and enable citizens and businesses to access control and correct their own data
- **Cross-border by default:** This implies that public administrations should make their digital public services available across border.
- **Trustworthy and secured:** This implies that the integration of “personal data protection, privacy and data security” in the designing of the national public administration systems.
- **Interoperable by default:** This implies that public services should be designed to work seamlessly across the Single Market:

Source [34]

The Single Digital Gateway Regulations and the e-Government action plan (2016–2020) have been prescriptive institutions. They provide guidelines each member states should adopt. In the case of the action plan, it provides the vision that should guide the service delivery process in the member states. But these institutions were created after some member states had developed their infrastructure. From an Institutional perspective, the EU have been inspired by these norms and regulations to develop continental cross-border services using the enablers identified in the previous action plans. Examples includes, the E-Justice portal, the BRIS, e-procurement etc. They have also developed supporting standards such as the e-Invoicing standard etc. Different member states have also adopted some of these norms and ideas to upgrade their national systems. An example is the case of Denmark as mentioned earlier.

However, the adoption of these institutions towards developing digital public cross-border services by member states is low. As a result the EU has adopted a new approach where the CEF building blocks and technical components for digital cross border service delivery are institutionalized. An example is the institutionalization of e-Identity via the eIDAs regulation.

Overall, one could predict that other building blocks will be institutionalized. However, there is the doubt that the institutionalization of these building blocks will lead to the rapid development of public digital cross border services. As this paper posits, the challenge

## 7 Findings and Analysis of Interview

### 7.1 Findings on the Danish/German Public Digital Cross Border Services

- **About The Region Sønderjylland – Schleswig:** The Region Sønderjylland and – Schleswig is a Danish/German border area made up of Region

Sønderjylland and Schleswig-Holstein. The Region Sønderjylland is an administrative region in Denmark while the federal state of Schleswig-Holstein is located in Germany. Both entities share a common border and are one of the entities that denote the Danish-German special relations and cooperation. Both regions work together to strengthen administrative cooperation in the following areas, Politics, culture and cross-border labor market cooperation. The Region Sønderjylland – Schleswig organization is an agency provides advisory services and administer EU funding dealing with culture and cross-border services between the two cross-border regions. The vehicle for this cooperation is the entity called the Region Sønderjylland – Schleswig.

The Region Sønderjylland – Schleswig representatives of the regional representatives and municipalities from both regions manage Schleswig. There is also an indirect EU influence to the set-up as some of the administrative members are involved in EU committees. Their joint administrative office is in Padborg, Denmark and the municipalities located at the border between Denmark and Germany fund them.

- **The state of Danish/German digital cross-border services:** Feedback gathered from the Region Sønderjylland – Schleswig indicated that the Danish and German e-government infrastructure exist in silos as seen in the Table 3.

The architecture of the public administration systems in both countries are not interconnected. In Denmark, the provision of e-Services is through a centralized portal, it is digital and each user has a single e-identity. In Denmark, citizens access digital public services via the citizens service portal (Borger service), while businesses are served by Virk, managed by the Danish Business Authority. Residents in Denmark possess an e-Identity NemID that is linked to their social security number and any other ID one might acquire. With the NemID, they can provide and access information to and from the digital portals using the Once-Only-Principle

**Table 3** Comparison of public administration infrastructure between Denmark and Germany

	Denmark	Germany
e-Service delivery	Centralized delivery of e-services	Hybrid(centralized and Decentralized delivery of e-services)
E-identity	Converged e-identity	Multiple-e identities
Online status	Digital services	Digital services
Form of payment	Digital	Digital

*Source:* interviews conducted

nationally, as prescribed in the EU policy. NemID is available for the blind, implying that they adhere to the EU policy with respect to Inclusiveness and accessibility. Furthermore, financial transactions on the public service delivery services are digital.

The German system on the other hand is different. Their digital public service delivery is in silos. They possess multiple e identities and some aspects in their public service delivery is not digital. A lot of paper work is needed to support certain applications. Furthermore, most payments are made with cash.

As a result, both national systems exist in silos to one another driven in part by process asymmetry in the delivery of cross-border digital public service delivery. The process asymmetry is a result of national centric approaches to public service administration.

- **Current Danish/German cross-border processes:** Currently, there is no special cross-border agreement between the Danish and German governments. Existing collaborations occur under the EU framework. This is where the Region Sønderjylland – Schleswig comes in to play. Due to language barrier, some German companies and commuters rely on the agency for information and advice on how to access the Danish market and labor force and vice versa.

Germans who either commute or operate across border have an easy access to Danish digital public services, once registered in Denmark. German Citizens who intend to live and work in Denmark can do so under EU rules after registering with the State administration (statsforvaltningen). Here they receive a resident permit and further register with a municipality to receive a social security number. This enables them to work in Denmark. Commuting Germans will only have to register for social security number at the municipality. They do not need a social security number if they are also working in Germany. However, because these services are not available across border, they have to come to Denmark to perform some of these activities. In a similar vein, Germans who are self-employed or entrepreneurs who operate in Denmark but do not live in Denmark need to register in the RUT register and be granted a “tax person number”. He/she will be granted a dormant social security number and Nem ID, which will only be activated once the person takes up residence in Denmark. However, once granted the “tax persons number” they can access the Danish tax system online to file their tax returns online across border using nemID. Failure to register their will result in a fine of 10,000 DKK (1340.87 Euros) per control.

Germany has more relaxed rules and requirements when it comes to the freedom of movement of Danes and other EU citizens. However, when it comes to the issue of market entry either across border, three processes are involved. The processes include, registration in the company register (small companies exempted), Informing the trade (or regulatory) office in the town or district where the business will be located and the Registration with Chambers of Industry and Commerce (IHKs) and the Chambers of Crafts (Handwerkskammern). Entry into the company register is performed online, an eID is not needed. Other processes could be online, offline or both, depending on the location in Germany. In some cases one needs a German Social security number.

As the Region Sønderjylland – Schleswig agency is a collaboration of municipalities across both sides of the Danish and German Border; they help in prospective commuters in easing the challenges associated with the lack of interoperability of both systems.

- **Institutional legitimacy challenges to cross-border digital service delivery:** There would be varied reasons for the lack of seamless cross border service between Denmark and Germany. However, feedback from the interview pointed to the fact that existing infrastructure reflect the national centric approach to public service delivery. Some of the factors, identified by the respondent as, driving the national centric approach are listed in the Table 4.

These factors can be separated into supply-side factors and demand side-factors. These supply side factors are elements where issues bordering on institutional legitimacy in these countries.

**Table 4** Factors impeding the delivery of public digital cross-border services between Denmark and Germany

	Factors	Denmark	Germany
1	Language	Primarily Danish	Primarily German
2	Approach to public administration	Welfare state governed by a Unitary parliamentary government	Welfare state governed by a federal government
3	Trust towards government	They trust the government	They do not trust the government

*Source:* interviews conducted

**a. Supply – Side factors**

- **Language:** Language is often regarded as a social institution (see [35]), and it is culturally cognitive. In most cases, it is the basis of national identity. It is adopted in the delivery of public services because of its institutional legitimacy. In this case, language is one of the corner stones of any culture. Hence, it is culturally supported. Therefore, the national language is the first priority when it comes to the official language used for the provision of information and interaction on digital public service delivery portals. The down side of this factor is that EU citizens who do not understand the language may not be able to interact with the public service that are being delivered. It is important to note that some public services in Denmark with respect to business registration is available in German and English. Similarly, some information on existing German public service portals are available in English. This is only but limited access to relevant information.
- **Approach to public administration:** This idea, identified by the respondent, is the national vision guiding the delivery of public services. He noted that both Denmark and Germany are welfare states, but their approach are different. A Unitary Parliamentary government governs Denmark. The norm behind public service delivery in Denmark is to create an equal society based on solidarity. This forms the basis of the emerging norms guiding the delivery of digital public service delivery. This norm is legitimate because it is considered morally right or the right thing to do. The source of this norm is from a cognitive institution which is of Scandinavian origin and visible in other Scandinavian countries. Therefore, it is morally right from the Danish perspective to make Digital public services accessible to all. Germany is also a Welfare state seeking to create an equal society as well. However, their welfare system just as their government structure is different from that of Denmark as mentioned in the Table 5. But the Germans do not possess a similar culturally cognitive Scandinavian institution which has an effect on how they approach public administration. Therefore, there is no cognitive institutional legitimacy towards adopting a similar public delivery model such as Denmark. Furthermore, there is no normative institutional legitimacy in suddenly making every public device digital.

**b. Demand side factors**

- **Trust towards government:** The respondent indicated that Danes and Scandinavians in general trust the government, while Germans due

to their recent history do not. This factor is related to the approach in public administration. This is because trust is facilitates when the government and the citizens find certain institutions to be legitimate for governance. In the case of Denmark, Danes believe in the normative institutions governing the welfare state. They find it to be morally right. Therefore, when the government introduces the public digital service delivery platform under the principles of these norms, the citizens are open to adopt the service. In the case of Germany, the lack of trust stems from the lack of a shared norm or which would make the delivery of digital public services morally right. Therefore, there is also the lack of legitimacy as seen from the demand side to the delivery of digital public services, due to history.

Therefore, institutional legitimacy is seen to affect the supply and demand of national digital public service delivery. This in turn has an impact in the lack of interoperability of cross border service infrastructure between both countries.

## **7.2 Findings on the Danish/Sweden Public digital cross-border services**

- **About Øresunddirekt:** Øresunddirekt is an informational and advisory service facilitating activities for commuters and businesses commuting between Denmark and Sweden. The agency is co-ordinated by länsstyrelsen (county administrative board of Sweden). They work in partnership with the Nordic Council of Ministers and public agencies from Sweden and Denmark. Public agencies rotate their shift at the Øresunddirekt office in Malmö. Here citizens from Denmark and Sweden can visit or call if they need information about on how to access public Services across border. There service is unique because Danish/Swedish border accounts for 18000 commuters daily.
- **The state of Danish/Swedish digital cross-border services:** Denmark and Sweden are similar in the sense that both possess digital public services both for businesses and for citizens. However, these systems are dissimilar and hence not interoperable. The G2B and G2C e-service delivery in both countries are different.

In the case of Denmark, there is one form of access via a converged e-identity. While in Sweden, there are multiple access points. The Danish system is not accessible to persons without the NemID number, while the Swedish System is not accessible to persons without BankID or any of the other IDs. Hence, there is an e-service delivery process mismatch as

**Table 5** Comparison of public administration infrastructure between Denmark and Sweden

	Denmark	Sweden
e-Service delivery	Centralized delivery of e-services	Hybrid(centralized and Decentralized delivery of e-services)
E-identity	Converged e-identity	Multiple-e identities
Online status	Digital services	Digital services
Form of payment	Digital	Digital

Source: interviews conducted

well as the eID and authentication mismatch. This problem contribute to the lack of interoperability. However, within the framework of the Nordic council of Ministers, both countries are committed to promoting cross-border services. However, these challenges makes the implementation of that effort complex.

- **Current Danish/Swedish cross-border processes:** In both countries, once one has a valid e-Identity for both countries, they will access the relevant public service. The case of Swedes commuting or establishing a company in Denmark is the same as a that of German as described earlier. In the case of Danes commuting to Sweden, citizens are granted a BankID or any valid eID to enable them access the digital services in Sweden. Certified private providers such as banks and telcos provide these eIDs. Persons establishing companies are given a VAT id by the tax authority. However, for limited access to other public systems in Sweden, they will be granted a personal number. Companies not based in Sweden often end up getting a BankID in order to open a Bank account.
- **Institutional legitimacy challenges to cross-border digital service delivery:** The respondent identified that Denmark and Sweden share culturally cognitive institutions. However, the normative institutions enshrined in their e-government and digitization policies differ. The digitization policies in Denmark promotes a collaborative national, regional and municipal approach towards the delivery of digital public services. In Sweden, the digitization policies encourage a decentralized approach driven by different national, county and municipal agencies. The respondent also indicated that the regulative institutions governing public digital service delivery and the legislative processes aimed at creating these regulative institutions differ in both countries. The differences in the regulative institutions has resulted in:

- a. The lack of regulations to facilitate digital cross-border service delivery between the two countries:** Denmark and Sweden are not averse to regulative institutions emanating from the EU or the normative institutional approach emanating from the Nordic council of Ministers. As explained by the respondent, legislations that are legally sanctioned by the EU are adopted both by Denmark and by Sweden. These regulations are harmonized within the framework of the Nordic Council of Ministers, who incidentally share some of the ideals of the EU. Currently there is no EU law on the delivery of digital public services across border.  
However, there are laws on the adoption of the enablers for cross-border public digital service. An example is the eIDAs regulation. Apart from the eIDAs regulation there is no other basis of legitimacy for creating an interoperable system between both countries. Therefore, Denmark and Sweden rely more on their national regulative institutions as a means of deriving legitimacy on how cross-border public digital services should be delivered. These national regulative institutions are, mostly, sector specific regulations that arm sector related agencies in the delivery of cross-border services. They are not national regulative framework aimed at facilitating the delivery of cross-border services from a cross sectoral perspective.
- b. Adoption asymmetry in the adoption of cross-border policies from the Nordic Council of Ministers:** Within the context of the Nordic Council of Ministers, Denmark and Sweden align their cross-border rules in line with EU laws, directives, policy and rules. They also operate within the framework of the Nordic Council of Ministers, who incidentally also align with EU policies and rules – even though they existed before the EU. The Nordic council of ministers identify barriers impeding the delivery of cross-border service delivery. Øresunddirekten is one of the agencies that identifies these obstacles in their interaction with citizens and feed their findings to the Nordic council of Ministers. Once the Nordic council of ministers adopt a policy, individual Nordic countries including Denmark and Sweden do harmonize their laws to reflect the policy. How the laws are enacted are based on the normative and cognitive institutional legitimacy for such laws in individual Nordic countries. However, there is a time frame asymmetry in the law making process in both countries. The Danish Government enact laws at a faster pace than their Swedish counterparts.

### **7.3 Summary of the Findings**

The major take away from the findings is that there are underlying institutional challenges in each EU member countries that may directly or indirectly prevent the development of a seamless digital public cross border services in the EU.

## **8 Discussion**

The discussion on the challenges to the development of seamless cross-border public services in the EU is not common in the academia. But it has been a topic discussed in the EU for many years. Nevertheless, as mentioned earlier, discussion on the uptake of e-government in EU member states has been ongoing for years. This is so not only for national and EU policy makers but in the academia as well. The challenges experienced by different governments over the years have been discussed both from the social and technical perspectives. These discussions has contributed to the national implementation and adoption of national digital public service platforms. As a result, 58% of EU nationals adopt national digital public service platforms as mentioned earlier [14].

The challenge however, is that there is very little research into the uptake of digital public cross-border services within the EU. There is also little research on the existing challenges to the deployment and uptake of digital public cross-border services in the EU. Therefore, there is a lot to learn about the social, technical and societal issues that could promote or hamper the development of such services.

The EU approach towards promoting a seamless digital public cross-border service has been heavily technical oriented. In September 2018, the EU member states were to activate the first phase of the eIDAs regulation aimed at enabling the uptake of trust and security services. Currently most infrastructure needed for this trust and security services are not ready. And when they are ready, there is the possibility that certain national institutions become barriers to the smooth implementation of the eIDAs. This is because, the trust credentials presented by an EU citizen to access the digital public service of another member state, may not be sufficient for the intended G2C or G2B services. This is because; the institutions of the member states stipulates the credentials needed to access certain G2B and G2C services within their jurisdiction. This will be the same for other aspects of the Connecting Europe Facility (CEF) cross-border enabling building blocks, when implemented.

As mentioned in this paper, different countries in the EU are interested in cross-border trade. They are interested in the facilitation of digital cross-border services. They are interested in adopting the EU institutional framework towards developing cross-border services. Nevertheless, they are hampered by national institutions, which influence the structure of government, which has an influence on the technical implementation of G2B and G2C services in Denmark, Sweden and Germany. These national institutions are legitimate and have been proven over time. As a result, different countries have developed different approaches to the delivery of G2B and G2C services. They have tailored these services to fit the national institutional framework over the years. Therefore, technical solutions backed by continental institutions are likely to be problematic. This is a complex problem. However the solution may not be complex if the problem is addressed from a bottom-up and from an institutional perspective. One thing that is certain, as seen in the case of Denmark, Germany and Sweden, is that the normative and culturally cognitive institutions do have an influence on how the services are delivered. However, addressing the normative and culturally cognitive institutions, such as the normative approach to governance, national language etc., would be next to impossible. These institutions make the nation and grants the nation its identity.

However, such solutions are possible if they are addressed from the perspective of regulative institutions. As an example, an effort could be made by the EU member states to harmonize, at least, the regulative institutions of the member states to that of the EU for the delivery of “essential cross-border G2B and G2C services” in every major language in the EU. For the G2B services, such essential services could border on services with respect to business registration. For G2C services, the essential services should be services that are relevant for commuters or foreign EU workers. In this way, the requirement specifications for the technical systems that would deliver the essential services would be the same across member states. Furthermore, the system delivering the essentials would gain some form of institutional legitimacy. Then member states could control how they deliver other services that are not essential for cross-border G2B and G2C service delivery. That would be a more logical step before implementing the existing standards in the CEF building blocks. This will ensure that common services with common access credentials exist before trying to bridge the different systems. A challenge that might slow down the regulation harmonization process is the fact that some member states enact regulations at a faster pace than others do. An example in the findings is the case of Denmark and Sweden. It might not

be wise to force member states to enact such regulations at the same pace. This is because, the legitimacy of the regulation might be hinged on a broader national consensus and that takes time to achieve. In a similar vein, there could be cost-related issues borne by the member states to facilitate such an initiative. Therefore, this suggestion is not an easy fix. However, the regulative solution suggested here is a good starting point towards addressing the problem.

The major outcome for the analysis in this paper is that one of the major barriers impeding on the implementation of the seamless delivery of Digital Public Services in the EU is the lack of national institutional legitimacy for the technical solutions proposed by the EU.

This delimitation of this paper is that the focus is on the institutional dynamics as extracted from the interviews and from literature. In a similar vein, the focus is not on the technical dynamics of the infrastructure, even though it was difficult to avoid mentioning them. Finally, the thoughts presented in this paper are not meant to be definitive but generate discussion in this regards.

## **9 Conclusion**

From this paper, it is clear based on the cases investigated that the national institutions do have an influence on how public digital cross-border services are delivered. Furthermore, the existing systems delivering the cross-border services were developed to facilitate governance within these institutional frameworks. The cases studied in this paper developed their infrastructure in parallel before the EU institutional framework could evolve. Hence, the technical systems are different and interoperability becomes a problem. After analyzing the cases, this paper concludes that indeed institutional legitimacy is one of the barriers to the delivery of a seamless public digital cross border service, which is a vision of the EU.

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## Biographies



**Idongesit Williams** is a Post-doctoral researcher and lecturer at Aalborg University Denmark. He acquired a Ph.D in 2015 at Aalborg University, specializing in internet policy and digitalization. He has for 7 years lectured and supervised Master of Science in Innovative Communicative Technologies and Entrepreneurship students at Aalborg University. Here he lectures on Internet Economics and Governance. He is been involved in EU projects involved in the digitalization of Education (OnCreate, an Erasmus plus project), the digitization of ideation process for companies (VOICE, an CIP, FP7 project), and now the facilitation of digitization in the Baltic Sea Area (DIGINNO, an EU Interreg programme). He is widely published with about 40 publications and regular in conferences related to the development of Internet policies and digitization initiatives.



**Morten Falch** (born 1955) is Associate Professor at Center for Communication, Media and Information Technologies (CMI) located at Aalborg University Copenhagen. He holds a bachelor in Mathematic, a master degree in economics and a Ph.D. and has since 1988 specialised in research on socio-economic issues related to Information and Communication technologies.

This includes economic analysis of applications and telecommunication networks and services (e.g. Cost analysis of telecom networks), e-government,

regulation of the telecom sector (in particular regulation of interconnection), ICT and industry policy, the role of competition in innovation of new services and frequency management.

He has participated in many EU funded research projects in the telematics area. He has also conducted a large number of consultancies for national and international organisations such as ITU, UNCTAD, the World Bank and the National Telecom Agencies in Denmark, Norway and Sweden.



**Reza Tadayoni** (born 1962) is associate professor and head of CMI (Center for Communication, Media and Information Technologies) at Aalborg University. He holds a M.Sc.E.E. from DTU (Danish Technical University) specialized in broadband communication, and holds a PhD from DTU in the field of media convergence. His main research focus is on the ICT development and media convergence. Reza Tadayoni has developed a number of courses at undergraduate, graduate and PhD level in the field of communication and media technologies. He has participated in a number of Danish, European and international research projects and he has supervised a number of PhD projects and master and bachelor thesis, and he has published +100 of scientific papers and research reports.