



# e-Government success: A global benchmark and segmentation

# Contents

|  |    |
|--|----|
| Executive summary  | 2  |
| Introduction   | 4  |
| • Context  | 4  |
| • About CS Transform   | 4  |
| Measuring and segmenting e-Government performance: approach and methodology  | 5  |
| • Our approach   | 5  |
| • Methodology overview   | 6  |
| • Using United Nations benchmarking data as the baseline to measure current levels of e-Government maturity                | 6  |
| • Evaluating the extent to which e-Government performance can be explained by socio-economic differences between countries | 7  |
| • Identifying what other (ie non socio-economic) factors might also be at play   | 9  |
| Measuring and segmenting e-Government performance: results   | 12 |
| Conclusions  | 14 |
| Annex A: Government Complexity measurement framework   | 15 |

# Executive summary

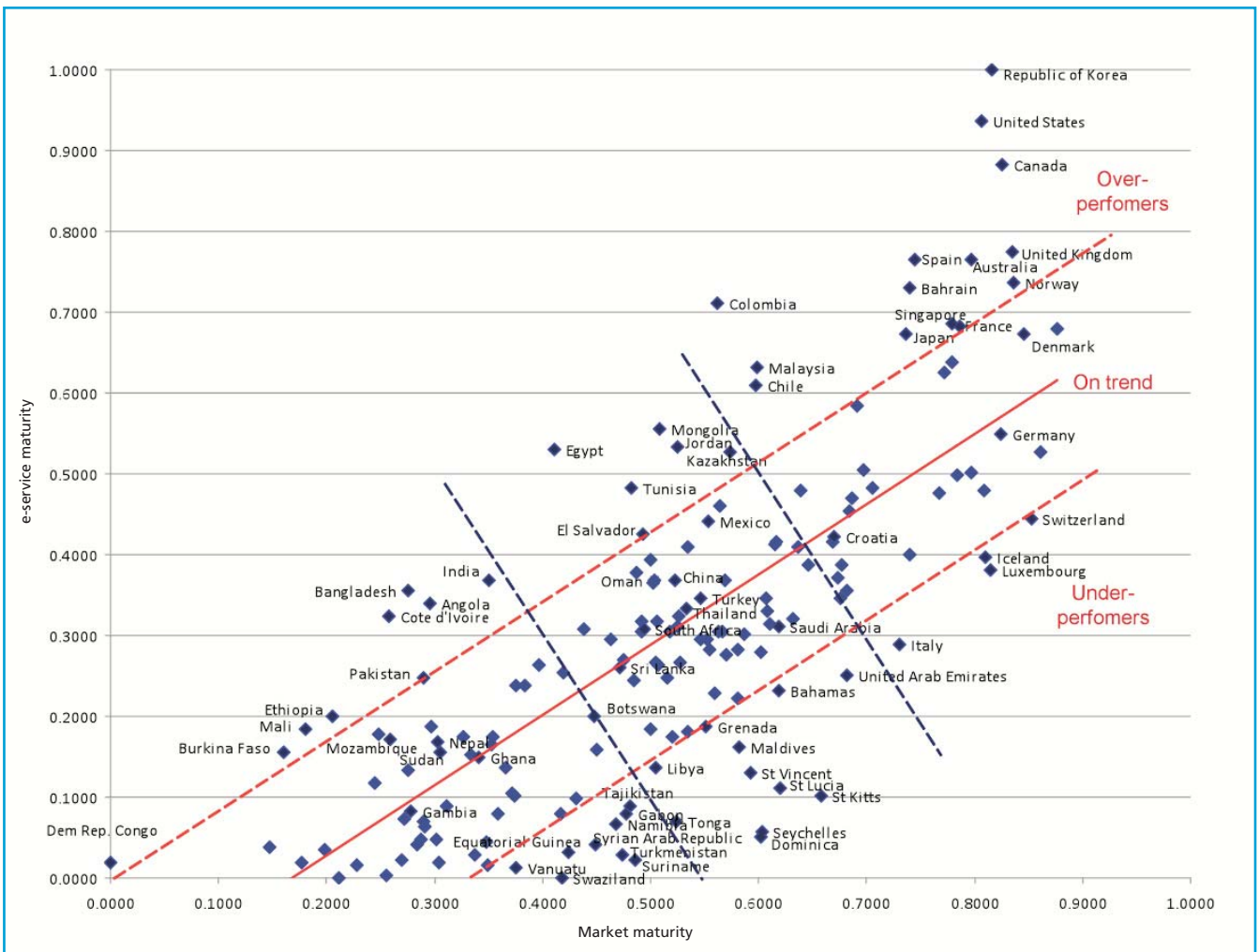
This White Paper presents the results of new analysis by CS Transform Limited, looking at how governments differ in the maturity of their e-Government - and at the factors which determine different levels of performance.

Key results are:

- 1 E-Government performance is strongly correlated with the broader level of socio-economic development in a country:
  - Of the socio-economic variables we studied, the maturity of a country's ICT infrastructure is the most important driver of national variation on e-Government maturity as benchmarked by the United Nations.

- Perhaps unexpectedly, the wealth of a country is not significant on its own. Indeed, increased GDP per head only has an impact on e-government performance if it is first successfully translated into increased investment in human development and ICT infrastructure.

- 2 But socio-economic development factors do not explain everything. At all levels of e-Government maturity, there are governments which have achieved significantly more progress than would be predicted from the broader level of market development in their country - as shown in the e-Government segmentation illustrated in the chart below.



- 3 Our research has reviewed six major variables that could impact on e-Government performance. In aggregate, the model we have developed is extremely accurate, explaining 84% of the variation in Online Service Maturity of the governments studied.
- 4 Critically, our analysis shows that internal factors are more significant than external market ones in determining e-Government leadership. The most important variable is governance.
- 5 Specifically, our analysis shows that **building governance systems which are focused around the needs of citizens** - in terms of business management, customer management, channel management and technology management - **is the single most important factor in determining e-Government performance.**

# Introduction

## Context

CS Transform is a consulting business which is committed to helping governments deliver citizen service transformation. As part of that commitment, we are publishing a series of White Papers dedicated to understanding citizen service transformation and how governments can make it a reality.

Our first White Paper - "Citizen Service Transformation - a Manifesto for change in the delivery of public services" - set out a best practice framework for deploying ICT within the public sector in a way which delivers significant and transformational impacts.

In this companion White Paper, we focus on understanding the differences between governments:

- what are the key dimensions along which governments differ?
- how do countries differ in terms of e-Government performance?
- what are the factors that determine this?
- and, finally, what do these differences entail for the approach which governments should take to implementing the general principles described in our overview White Paper?

## About CS Transform

CS Transform brings together a team of experts who have worked at the leading edge of this agenda across the world over the last ten years: building the vision for citizen service transformation; developing strategies and roadmaps for citizen service transformation; and - most importantly - delivering citizen service transformation in practice<sup>1</sup>. We have also - both as e-Government leaders and as consultants - made many mistakes and learned many painful lessons. This series of white papers seeks to bring that learning together. One thing we know is that they will not be 100% right! We therefore welcome feedback on this and our other white papers, so we can work to improve it over time.

Please email us your comments to [impact@cstransform.com](mailto:impact@cstransform.com).

1 See [www.cstransform.com](http://www.cstransform.com) for a wide range of case study examples

# Measuring and segmenting e-Government performance

## Approach and methodology

### Our approach

Many organisations have sought to compare national levels of performance on e-Government. Figure 1 lists some of the major and most commonly cited benchmarking studies.

### *Fig 1: benchmarking studies on e-Government*

#### United Nations e-Government Survey

A biennial survey and report that compiles, generates and analyses a wide range of economic, social and environmental data and information and creates an e-Government Development index, plus its component sub-indices (telecommunication infrastructure, human capital and Online Service Maturity).

[http://www2.unpan.org/egovkb/documents/2010/E\\_Gov\\_2010\\_Complete.pdf](http://www2.unpan.org/egovkb/documents/2010/E_Gov_2010_Complete.pdf)

#### Capgemini EU e-Government Benchmark Measurement

An annual EU Online Services Study to measure the availability and sophistication of 20 basic public services for citizens and businesses which should be available online and to provide a benchmark for the different European countries to compare progress and share best practices. The current benchmarking covers more than 14,000 URLs of 31 countries, being the 27 member states of the EU, plus Iceland, Norway, Switzerland and Croatia.

[http://ec.europa.eu/information\\_society/eeurope/i2010/docs/benchmarking/egov\\_benchmark\\_2009.pdf](http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/egov_benchmark_2009.pdf)

#### Brown University Global e-Government Report

A structured assessment of 1,687 national government websites from 198 nations around the world, with researchers visiting key government web sites and assessing services against a large number of indicators.

[http://www.brown.edu/Departments/Taubman\\_Center/minisite/policyreports/index.html](http://www.brown.edu/Departments/Taubman_Center/minisite/policyreports/index.html)

#### Economist Intelligence Unit e-readings rankings

Since 2000, the EIU publishes an annual e-readiness ranking of the world's largest economies. These rankings utilise a cadre of comprehensive and standardized quantitative and qualitative criteria to evaluate ICT development. A country's e-readiness is a measure of its e-business environment, a collection of factors that indicate how amenable a market is to Internet-based opportunities. The EIU publishes the e-Readiness assessment results in the form of a White Paper which is made freely available in April of each year.

<http://graphics.eiu.com/pdf/E-readiness%20rankings.pdf>

Typically, however, these studies tend to focus on the surface: they look at services, websites, portals, and measure how these compare against some sort of yardstick of best practice. They don't help to explain different levels of performance.

This is not intended as a criticism, just an observation about the inevitable limitations of a benchmarking approach which tries to cover a large number of countries at a time when most governments do not widely publish data on the use and impact of their e-services.

Recently, within the European Union, governments have sought to get a much more focused and explanatory view of comparative performance by adopting what the European Commission calls a "benchlearning approach". CS Transform Limited, as part of a broader benchlearning initiative led by the European Commission, has been running a comparative study of national government portals in the UK, France and Croatia - where intensive bottom-up data analysis and stakeholder engagement has been used to understand not only differences in performance but also the different contexts and drivers that explain those differences.

In this White Paper, we have taken some of the learning from this intensive benchlearning approach, and sought to apply it to a very wide range of countries. The following section sets out our methodology for doing this.

#### Methodology overview

The focus of our research has been to understand why governments perform at different levels on e-Government. To do this we have deployed a six-step methodology, which is summarized below:

- Step 1: use United Nations benchmarking data as the baseline to measure current levels of e-Government maturity
- Step 2: undertake statistical analysis to evaluate the extent to which e-Government differences can be explained by socio-economic differences between countries
- Step 3: develop hypotheses as to what other (ie non socio-economic) factors might also be at play
- Step 4: develop models to enable quantification of these other factors
- Step 5: undertake desk research to inform a quantification of these models for a significant sample of governments
- Step 6: use regression analysis of the resulting variables- to evaluate which have the most significant impact in explaining international differences in e-Government maturity

The following sections look at these steps in more detail. Section 3 then summarises the key findings.

*Fig 2: Top 10 countries in UN's 2010 Online Service Maturity benchmark*

| Rank | Country           | Index value |
|------|-------------------|-------------|
| 1    | Republic of Korea | 1.0000      |
| 2    | United States     | 0.9365      |
| 3    | Canada            | 0.8825      |
| 4    | United Kingdom    | 0.7746      |
| 5    | Spain             | 0.7651      |
| 6    | Australia         | 0.7651      |
| 7    | Norway            | 0.7365      |
| 8    | Bahrain           | 0.7302      |
| 9    | Colombia          | 0.7111      |
| 10   | Singapore         | 0.6857      |

#### Using United Nations benchmarking data as the baseline to measure current levels of e-Government maturity

Our approach has been to take the UN's bi-annual e-Government survey as our starting point. The latest version was published in January 2010, and it is the most comprehensive work of its kind, covering 189 countries and involving a significant amount of primary research to measure and compare national government portals and key online services.

This results in a league table for "Online Service Maturity" - of which in 2010 the Republic of Korea is at the top.

We have then developed a statistical model to identify what seem to be the key factors which determine different levels of national performance on this measure, as described on the next page.

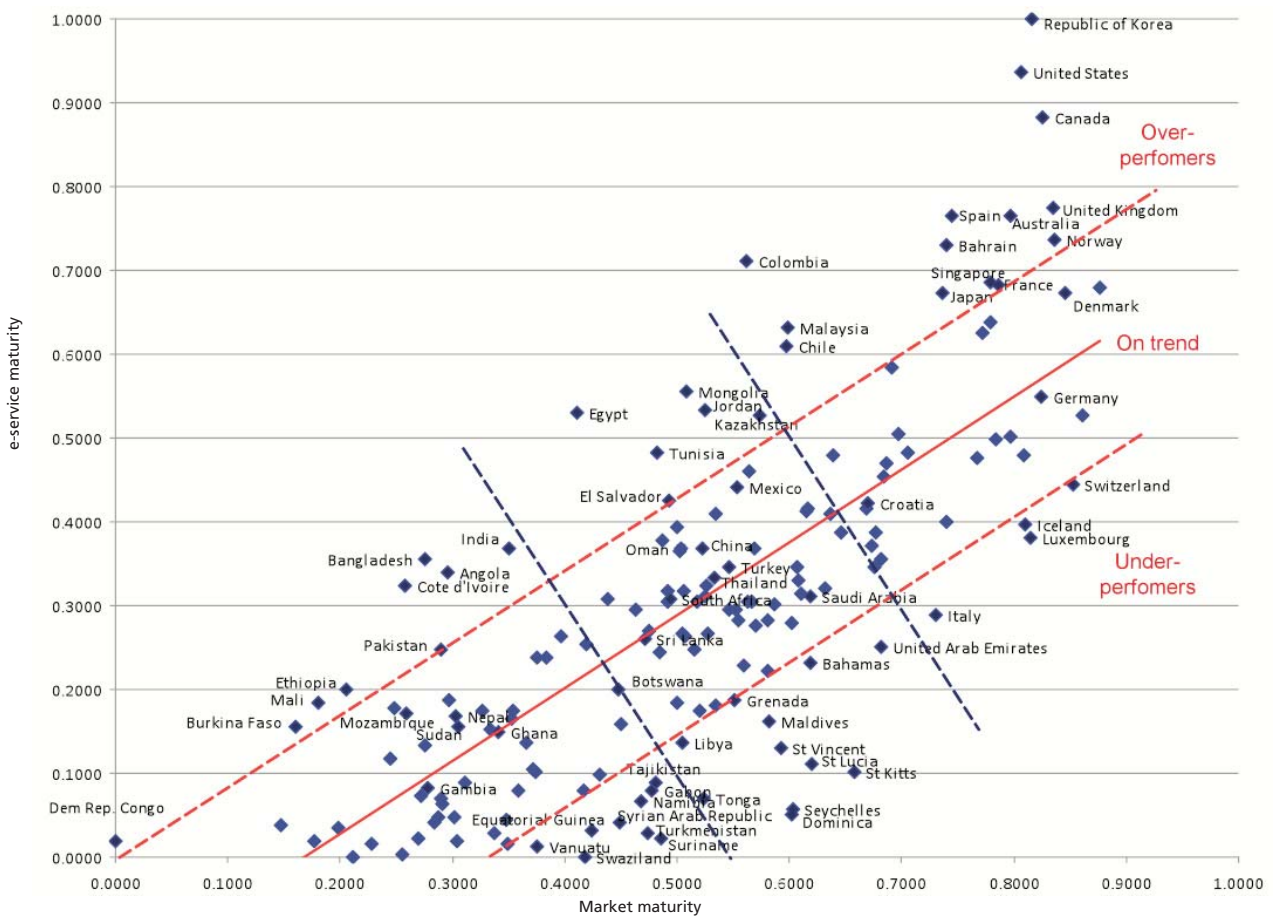
**Evaluating the extent to which e-Government performance can be explained by socio-economic differences between countries**

We looked first at the major economic and market differences between the countries. The UN has already started to do this within its benchmarking reports. Indeed, the headline benchmarking measure used by the UN is something they call: "e-Government maturity", which is an average of their Online Service Maturity measure, plus two statistical indices:

- the ICT Infrastructure Index (which measures the deployment and use of key information and communication technologies across a country's economy, using a mixture of World Bank and ITU indicators)
- and the Human Capital Development Index (which measures the extent to which a country is successfully investing in the skills and education of its citizens, using indicators such as literacy rates, and rates of participation in education).

While all three dimensions are clearly important, our view is that the UN's headline e-Government Maturity Index, by averaging these dimensions together, can sometimes obscure some important drivers behind national progress. The diagram below therefore "unpacks" the UN benchmark, showing the Online Service Index on the vertical index and a new measure called "Market Maturity" on the horizontal index, which we have created as an equally weighted index composed of the other two UN sub-indices: the Telecommunications Infrastructure index and the Human Capital Development index.

Fig 3: online service maturity and market maturity



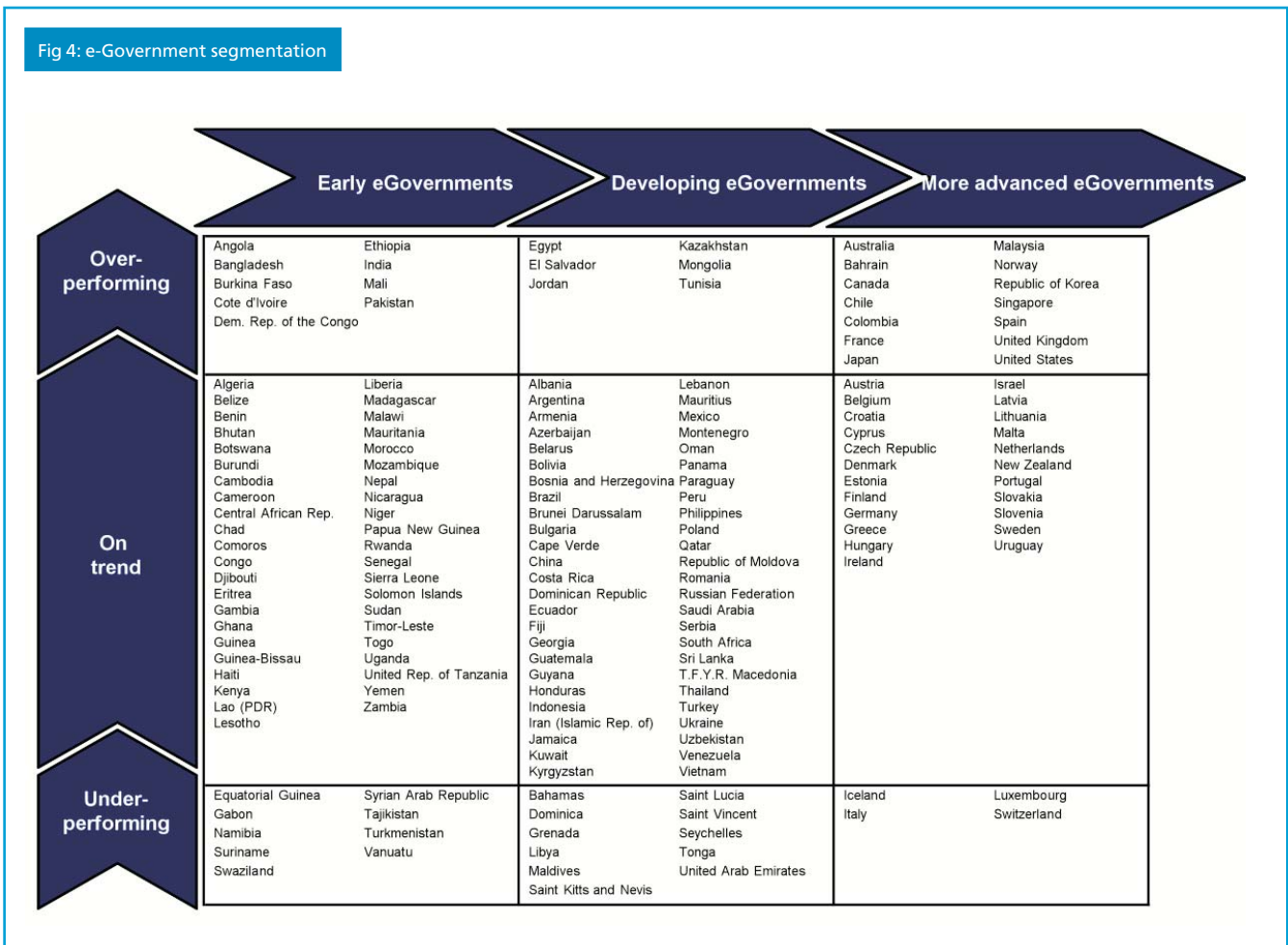


As the central red trendline shows, there is a reasonably strong correlation between market maturity and online government maturity<sup>2</sup>: overall, it seems as if governments “follow the market”, with online services improving broadly in line with broader indicators of market development.

However, some governments perform significantly ahead of that which would be predicted by the correlation with market maturity. Equally, there are others which are lagging behind the level of the market. In Figure 3 above, we have used this concept of under and over performance to segment the set of countries benchmarked by the UN. The dotted red-lines show those countries which have a higher than average degree of over or

under-performance<sup>3</sup>. And the blue lines show three broad bands of overall e-Government development.

Figure 4 lists all the countries that sit within each of the resulting nine segments illustrated at Figure 3.



<sup>2</sup>  $r^2 = 0.55$   
<sup>3</sup> To be precise, they vary from the predicted score by more than the standard deviation.

Given this high degree of over and under performance compared with what these market factors would predict, we need to look at what other factors are in play.

Other than those already looked at by the UN, the most obvious market variable which one would expect to have an impact on national differences in e-government is wealth. We therefore gathered World Bank data on wealth for as many of the UN countries as possible, looking at both:

- The total wealth of the country (as measured by GDP)
- The average wealth of its citizens (as measured by GDP per head)

We then undertook regression analysis<sup>5</sup>, to assess the extent to which these four factors (ICT maturity, level of human development, GDP and GDP per head) impact on a country's level of online service maturity. Perhaps unsurprisingly, the correlation is a strong one. Overall, as shown in the summary table, these four market variables account for 62% of the variation between countries in terms of online service maturity<sup>6</sup>. And the statistical probability that this result is due to random chance rather than a genuine causal link is near zero (as shown by the "F value" for the model).

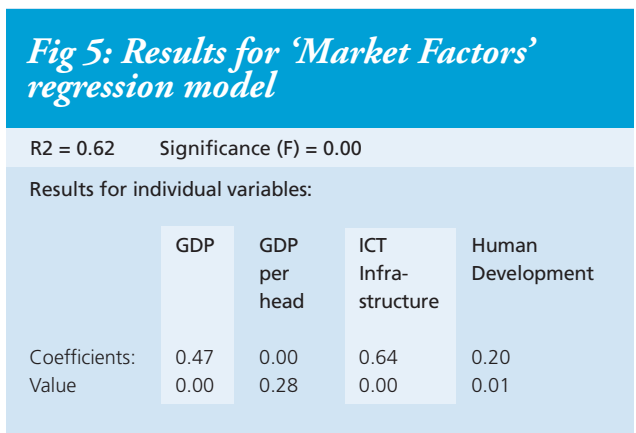


Figure 5 also shows which of the variables seems to have the highest impact on Online Service Maturity. The result is that it is the maturity of a country's ICT infrastructure, as shown by the high coefficient.<sup>7</sup>

Interestingly, GDP per head has a negligible impact - indicated by its coefficient of zero. When looked at in isolation, there is a strong correlation (valued 56%) between GDP per head and Online Service Maturity. However, when looked at within the context of the other variables, GDP per head adds no extra explanatory value on top of ICT infrastructure and Human Development (with which it is itself clearly closely correlated<sup>8</sup>). In other words, average levels of wealth in a country only seem to have an

impact on e-Government performance if they are first successfully translated into investment in human development and ICT infrastructure.

By contrast, the total size of a country's GDP does have a significant impact within the model (with the second highest co-efficient, at 0.47). So the overall size of an economy matters - larger economies tend to be more developed in terms of their e-Government. This perhaps reflects the fact that there are some fundamental economies of scale built into e-Government investment programmes.

The 62% explanatory power of this model is strong. And it confirms what one would intuitively expect - that to a large extent, different levels of national e-Government performance are driven by broader levels of market development.

But what explains the other 38% of difference between countries?

**Identifying what other (ie non socio-economic) factors might also be at play**

To answer this question, we set out to test two other hypotheses:

- First, that the complexity of a government has an impact: in other words that, all other things being equal, a smaller government, with fewer tiers, and less fragmentation in its decision-making and budgeting structures will make more rapid e-Government progress.
- Second, that the maturity of a government's internal governance and performance management processes has an impact on e-Government progress.

There are no readily available measures of either of these, so for each of these CS Transform has developed the measurement framework described on the next page.

5 Linear regression analysis is a statistical technique used to analyse how a single dependent variable (in this case, a country's score on the UN Online Service Maturity index) is affected by the values of one or more independent variables - and to apportion shares in extent to which each of the independent variables within the model has an impact on the dependent variable.

6 r2 = 0.62, higher than the r2 value of the ICT and human factors on their own of 0.55.

7 The co-efficient of 0.64 means that for every increase of 1 unit on the ICT infrastructure measure, a country will on average increase by 0.64 on the UN's Online Service Maturity index.

8 These correlations are 0.76 and 0.48 respectively.

To measure "Government Complexity", we took the view that complexity in this context is a function of:

- The complexity of a country's structure for public administration (ie how many tiers of government are involved in service delivery, and to what extent?)
- The complexity of budgetary decision-making and coordination arrangements
- The complexity of arrangements for political accountability for service delivery.

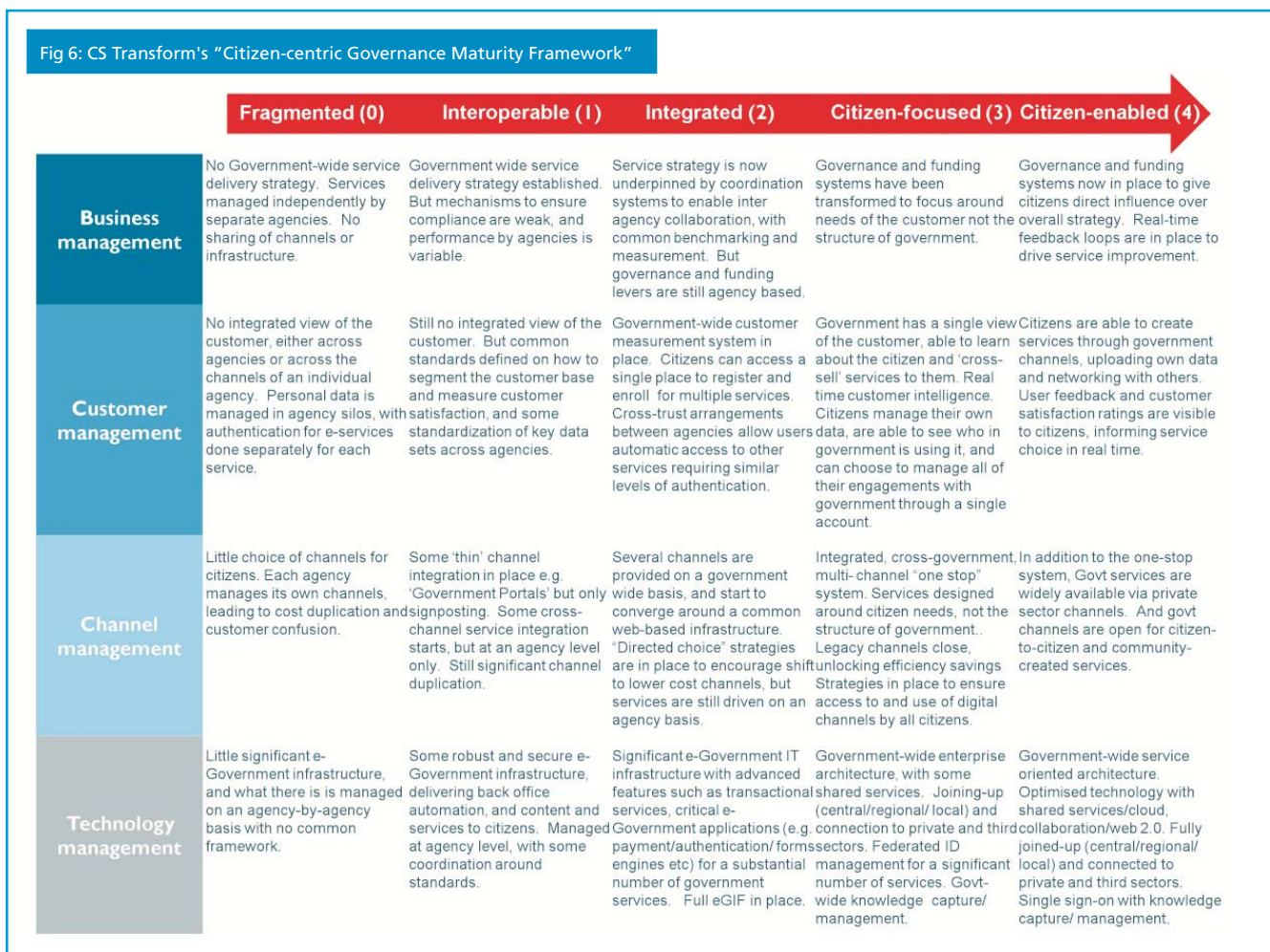
Annex A sets out the detailed criteria which we used to score a country against each of these dimensions of Government complexity.

To measure the maturity of governance arrangements for e-Government, we took as our starting point the "Citizen Service Transformation Value Chain" described in our overview white paper on citizen service transformation. This identifies four core processes of government service

delivery, each of which needs to be re-focused in a citizen-centric manner to deliver genuine service transformation:

- business management
- customer management
- channel management
- service-oriented technology management

For each of these four elements of the value chain, we have defined five levels of maturity for a government's governance processes, using the framework illustrated at Figure 6 below.



We then completed an analysis of 38 countries against these measurement frameworks for “e-Government Complexity” and “Citizen-centric Governance”, using a combination of desk research and input from relevant e-Government professionals. The countries were selected to give a broad spread across all nine e-Government segments identified at Figure 4.

In summary therefore, we have developed a model to test the extent to which six key variables impact upon a country's level of Online Service Maturity as measured by the United Nations in its 2010 e-government benchmarking study. These variables are summarized at Figure 7.

***Fig 7: Variables included in CS Transform's analytical model***

| Variable |                             | Nature of variable  |
|----------|-----------------------------|---|
| 1        | ICT Infrastructure maturity | External market factor. Already contained within the UN report    |
| 2        | Human Development           | External market factor. Already contained within the UN report    |
| 3        | GDP                         | External market factor. Added to the analysis by CS Transform     |
| 4        | GDP per head                | External market factor. Added to the analysis by CS Transform     |
| 5        | e-Government Complexity     | Internal government factor. Added to the analysis by CS Transform |
| 6        | Citizen-centric Governance  | Internal government factor. Added to the analysis by CS Transform |

# Measuring and segmenting e-Government performance

## Results

The results of our analysis are summarized in Figure 8. This shows that our expanded analytical model gives a much more powerful explanation of national-level performance difference on e-Government than just the market-related variables alone. As described in Section 2.4 above, the 4 market variables together explain 62% of e-Government variation. The expanded model now accounts for 84% of variation between governments.

### What conclusions can we draw from this?

The first point to make is that the data in the model covers only 38 countries. Also, it is a mixture of official statistics and a more qualitative scoring framework developed by CS Transform. Nevertheless, the analysis points to some two interesting conclusions which warrant further investigation.

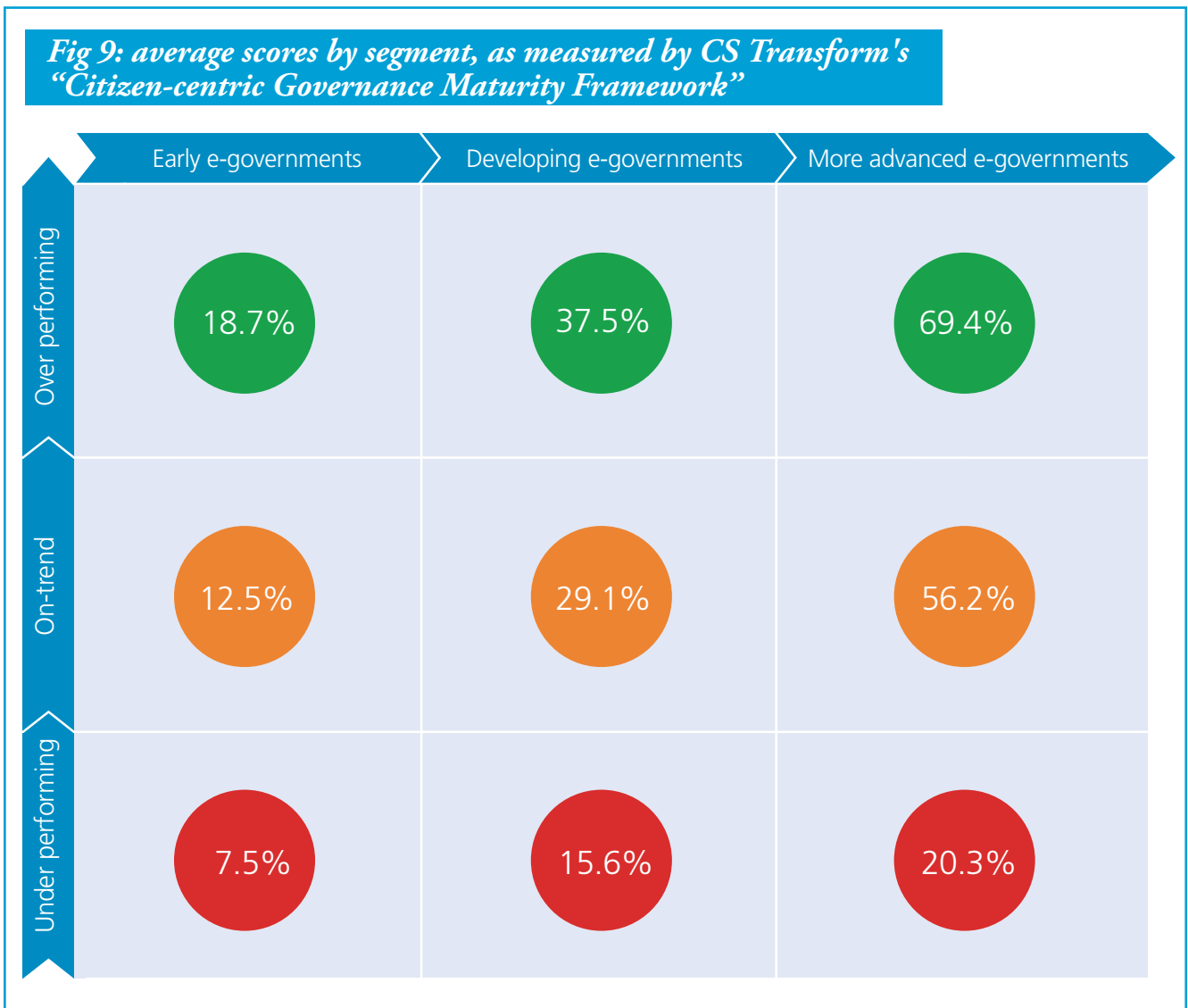
Firstly - and perhaps counter-intuitively - the complexity of the interoperability which a government needs to address seems to have no impact on e-government performance. For example, two countries which were at the opposite ends of our complexity scale - Singapore (a small, city-state government with relatively centralized decision-making structures) and the US (a large country with multi-layered and fragmented systems for service delivery, budgeting and political accountability for e-Government) - are both significant over-performers. And across the 38 countries studied, while complexity as measured by CS Transform's model described at Annex A varied considerably, this variation had no significant impact on the country's level of Online Service Maturity.

Secondly - and most importantly - of all the variables studied, by far the single most powerful factor is the maturity of a government's governance processes for managing the four key elements of the citizen service transformation value chain. This "governance" variable has a very high co-efficient of 0.65, and also an extremely high significance - its "P score" in the regression analysis is 0.00, which means that there is a statistically negligible chance that the observed impact is a random one.

As is shown in Figure 9 overleaf, the importance of effective governance is visible at all levels of development: in each of the three levels of e-Government development, the governments which are out-performing the market trend are those who are on average scoring higher than their peers when measured on CS Transform's "Citizen-centric Governance" maturity scale.

*Fig 8: Results from CS Transform's analytical model*

|                                   |      |
|-----------------------------------|------|
| R <sup>2</sup> = 0.84    F = 0.00 |      |
| Co-efficient of variables:        |      |
| ICT infrastructure                | 0.36 |
| Human Development                 | 0.03 |
| GDP                               | 0.15 |
| GDP per head                      | 0.00 |
| Complexity                        | 0.00 |
| Governance                        | 0.65 |



# Conclusions

We believe that the work done so far presents a strong in-principle argument that the UN should explore ways of expanding its biennial benchmarking survey to cover not just the e-services being offered by governments, but also to “look under the hood” at the governance processes which shape those e-services.

The findings to date offer significant hope for governments who are currently less advanced in implementing e-Government. They suggest that:

- e-Government progress, while of course linked to broader economic development, does not need to be constrained by it
- governments that implement best practices in the way they focus their business management, customer management, channel management and technology management around the needs of citizens can move ahead more rapidly.

And even for the currently most advanced governments, the model suggests that further improvements to citizen-centric government will lead to significant benefit: no single government among the 38 studied is currently scoring the maximum on all four dimensions of CS Transform's “Citizen-centric Governance” maturity framework.

For further advice on what doing this means in the specific context of your government, please see our further white papers at [www.cstransform.com](http://www.cstransform.com), or email us at [impact@cstransform.com](mailto:impact@cstransform.com).

# Annex A:

## Government Complexity measurement framework

Our framework is a composite measure consisting of four components, each of which is first normalised onto a 0-1 scale before being aggregated on an equally weighted basis:

### 1. Size of government budget

Uses World Bank data.

### 2. Complexity of government structure

Each government is attributed a score of between 0 and 9, by rating each tier of government from 0-3 (where 0=non-existent, 1=low, 2=medium, 3=high) on the significance of their role in direct customer service contact:

- Local
- State/Regional
- National

### 3. Complexity of funding arrangements for e-Government

Each government is attributed a score of between 0 and 3, according to which of the following options best describe its mechanisms for funding eGov programmes:

- 3 = The budgets for e-Government programmes are managed separately by many organisations, with very few examples of inter-organisation e-government projects being funded
- 2 = The budgets for e-Government programmes are managed separately by many organisations, but informal collaboration between organisations has led to some important inter-organisation e-government projects being funded
- 1 = The budgets for e-Government programmes are managed separately by many organisations, but formal governance mechanisms are in place to enable funding of pan-government initiatives
- 0 = There is a single budget setting process with a central authority able to prioritise & resource e-Government programmes across government

### 4. Complexity of political accountability for e-Government

Each government is attributed a score based on the option which best describes its political accountability for e-Government:

- 2 = The responsibility for delivering citizen services is spread across many organisations each with different lines of political accountability
- 1 = There are no more than two lines of political accountability for any citizen service (for example, to a nationally and locally elected government representatives)
- 0 = There is a single point of political accountability for all aspects of government service delivery



t +44 (0) 845 465 4683 f +44 207 681 3908 e [impact@cstransform.com](mailto:impact@cstransform.com)  
Head office: CS Transform limited 100 Pall Mall London SW1Y 5NQ UK

CSTransform 