COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HUMAN SERVICES

INFORMATION TECHNOLOGY STANDARD

Name Of Standard: **Dashboard Standards**	Number: **STD-EKMS003**
Domain: **Knowledge Management**	Category: **Data Warehouse/Information Delivery**
Date Issued: **1/16/2007**	Issued By Direction Of: **DHS Bureau of Information Systems**
Date Revised: **3/4/2016**	

Abstract:

The purpose of this Standard is to establish enterprise-wide standards and guidance for the development of Dashboards.

Dashboards communicate complex information quickly. They translate information from diverse systems into high-impact presentations using gauges, maps, charts, and other graphical elements. They present a dynamic, real-world view of business conditions with timely data refreshes. Dashboards provide one, simple version of business metrics to enable at-a-glance understanding and faster action. There are usually drill through capabilities that access other data sources and reports for more detail about what the dashboard shows you. They unite data from different core areas such as client data, provider data and financial data and distribute it for a complete, multi-dimensional picture.

Dashboard Technology Components:

Dashboard develop tools address the end-user reporting tools used to satisfy dashboard reporting requirements The mandatory tool set for dashboard development in DHS is Cognos BI - Cognos Report Studio.

General:

This standard applies to all developers, both Commonwealth employees and contractors, who develop dashboards for the Department of Human Services. This policy ensures that all develop and implemented applications will facilitate enterprise-wide interoperability and standardization.

Standard:

Dashboard Design:

1. A dashboard should fit on one screen at whatever resolution is considered to be the lowest common denominator for the users that will be viewing the dashboard. If more information is desired through the dashboard than can be shown on one screen consider the following:
    a. Maximize the data to pixel ratio - Use as few pixels as possible for ornamental purposes (titles, instructions, buttons, graphics, etc.) and instead keep the dashboard data rich by using prime real estate for the most important data. The more intuitive a dashboard is the less space that will be required for instructions (which should be context sensitive). Strive for eloquence through simplicity.
    b. Never have a third dimension on bars or pies or any graph or chart unless that dimension represents a measure. Even second dimensions should be minimized if they do not represent measures.
    c. An initial dashboard should represent a consistently high level of information with drill-through links to more detailed information if necessary.
2. Use appropriate graphic display mechanisms. Gauges and pie charts usually take up more real estate than necessary to show the same data that could be more clearly shown through bullet graphs or bar charts or even just sorted numbers. Line graphs show trends well, bar charts make it easy to see comparisons, and although pie charts may show how parts relate to a whole it is more difficult for the human mind to compare different sized pie slices or circles than it is to compare different bar lengths since the length of a bar is one-dimensional but the size of a pie slice or circle is two-dimensional and using two dimensions to represent one measure is unnecessarily complex and actually violates rule 1.B. above. Also, some display mechanisms like sparklines are better at showing trends over a very long period of time by sacrificing detail as compared with other display mechanisms like line charts that provide more detail but consequently take up more space, so if less detail is required, as may be the case with older historical data, real estate may be conserved by using a sparkline or whatever similar graphic display mechanism is part of the available tool set.
3. Use color very sparingly, and avoid red and green since color blind people cannot distinguish red from green. Shades of grey, on the other hand, are a very good way of showing graduations between good (lighter shades) and poor (darker shades) performance measure results. Also, when using shades of grey, if a different color is used to call attention to something it will stand out much more effectively than if many different colors are present. If the dashboard looks good printed on a black and white printer then it will probably look good to color blind people.

Dashboard Development:

1. Dashboards and dashboard drill-through reports should not access databases that support OLTP transaction systems.
2. Long running dashboard reports should be scheduled via Cognos Connection to run on off hours after the data needed for the report is refreshed.
3. Using a single Cognos report as the dashboard is preferred over multiple reports.

Exemptions from this Standard:

There will be no exemptions to this standard.

Refresh Schedule:

All standards and referenced documentation identified in this standard will be subject to review and possible revision annually or upon request by the DHS Information Technology Standards Team.

Standard Revision Log:

Change Date	Version	Change Description	Author and Organization
1/16/2007	1.0	Initial Creation	Unknown
08/31/2007	2.0	Update for a more complete standard based on industry best practices.	Larry Leitzel
08/27/2009	2.0	Reviewed Content, no changes	Jere Shifflett
3/4/2016	2.1	Minor revisions	Allan Trason