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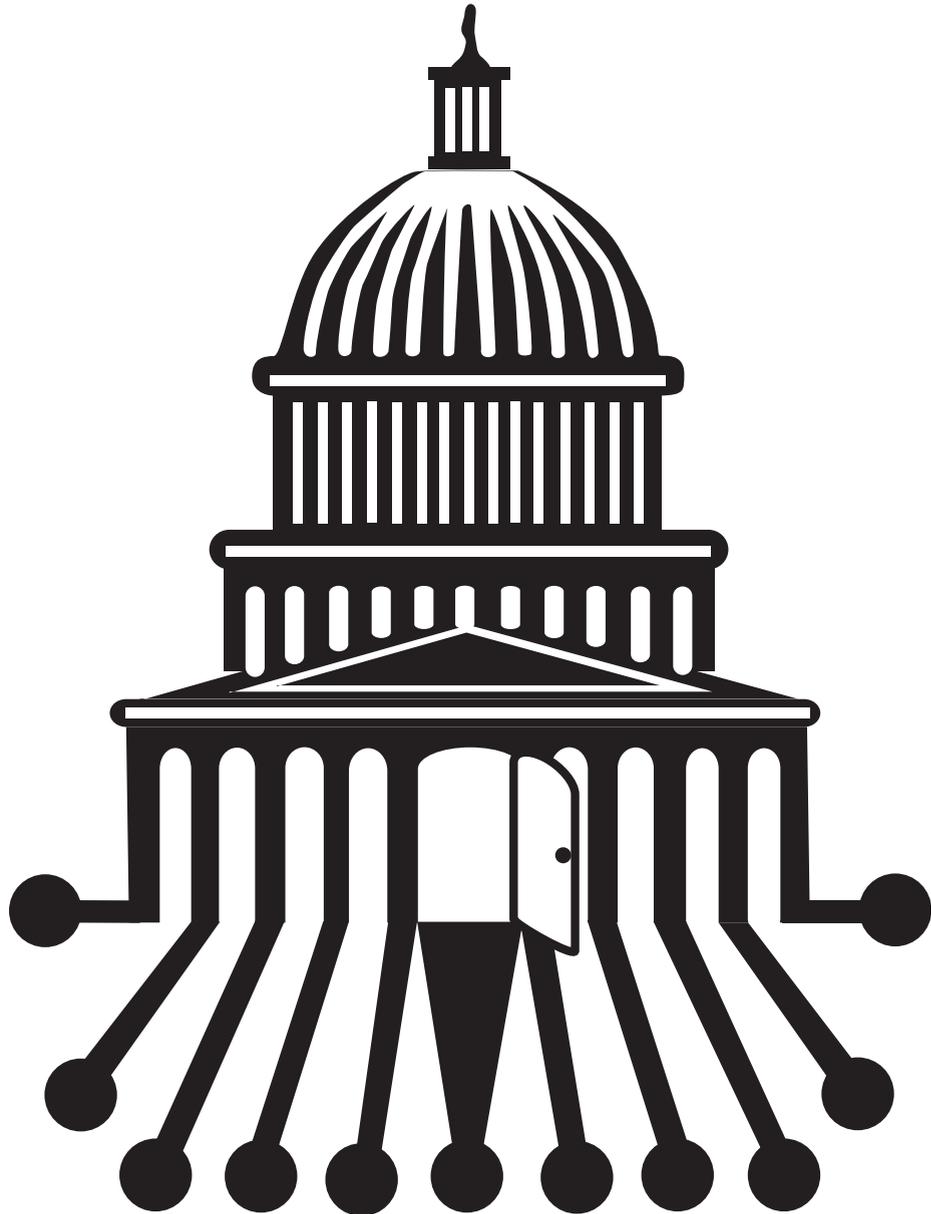
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On a Path to Greater Transparency, Openness

An Closer look at the Open Government Directive

In an historic effort to achieve an unprecedented level of openness, the White House issued the Open Government Directive (OGD) in December, instructing Executive branch departments to publish three 'high-value' data sets online within 45 days.

The administration's underlying goal behind the OGD is to drive greater transparency and 'openness' and "strengthen U.S. democracy and promote efficiency and effectiveness in government."

As of Feb. 1, 47 federal departments, agencies and other federal and regional institutions had published 336,000+ data sets, which included everything from raw statistics to tools that will aid in reading the data sets and a variety of geospatial maps and other information. The current administration's goal is to provide more detailed information in an effort to increase both transparency and accountability and create informed participation by the public. **In a prepared statement, federal CIO Vivek Kundra recently said, "The Obama Administration is committed to unlocking public data to drive innovation by tapping into the ingenuity of the American people, increase agency accountability and change the default setting of Washington to be open, transparent and participatory. For far too long, government data has been locked within the four walls of Washington and confined to a selected group of people."**

Only time will tell if the data made available can live up to the president's expectations. So far, early data sets made available via www.data.gov include everything from Health and Human Services' annual summary of Medicare Part B spending, which was previously sold on CD-ROMs for $100, to information that was already previously published on agency websites and elsewhere online. A few agencies selected material that could best be deemed obscure, according to industry observers. And a few critics said some federal agencies chose to release outdated facts and figures at the expense of long-standing requests for more relevant, sensitive information.

Most observers believe that once the initial rush subsides and the information that's quick and easy is posted, the hope is there will be greater emphasis on posting information that would qualify as 'high value.' According to the directive, this would include any information "that can be used to increase agency accountability and responsiveness, improve public knowledge of the agency and its operations, further the core mission of the agency, create economic opportunity, or respond to need and demand as identified through public consultation."

For now, it's hoped the federal government's early 2010 priority will grow into a new way of thinking about public accountability and will drive more relevant, useful information from federal coffers. Industry observers said government and industry partners must focus on the outcomes that can be achieved when data is made available, and pursue solutions that securely and cost effectively reach these goals. The Open Government Directive is really all about two-way communication between government agencies and citizens. "It's the promise technology holds for making government more efficient, transparent, and responsive to citizens," said Susie Adams, civilian CTO for Microsoft Federal.

For now, the directive is largely aimed at automating Freedom of Information Act (FOIA) requests, which is why it's important to make as much of this information as possible searchable, yet secure. "The goal here should be to build a single authoritative voice of information from each agency, to adequately answer FOIA requests," Adams said.

The challenges involved in meeting the OGD goals aren't technology-driven as much as they are change, and process-related, she explained. "With a ton of backlog in FOIA requests in nearly every agency, there's no silver bullet solution to fix the situation," she said. That's because addressing backlogged FOIA requests will require access to a combination of systems, and data stored in legacy formats – some of which may be 30 or more years old. "Helping agencies build a process that enables them to achieve the directive, while not exposing the organization to threats or public trust concerns isn't easy," she explained.

One technological advance that could be of assistance is cloud computing, as data housed in legacy systems can be extracted, 'curated' and made available in search indexes and provided with APIs so anyone can look at the data, build mashups, and perform the types of trend analyses that would fulfill FOIA requests. "The question is how to do all of this

in a timely, cost effective manner, as agencies can't afford to risk security/privacy, to meet the president's new directive," she explained.

This is why many agencies are starting to look for COTS solutions, based on industry standard data formats that must be interoperable, she said. "Microsoft has built a framework with sample code, open source-based, so that when government agencies need to publish raw data sets, they can do so, based on industry standard data sets that generate the APIs needed to host that data in a cloud, and make it searchable," she said.

The goal of this effort is to help agencies curate their data, rather than write the code needed to make open government information available, she explained. Because they can't rip out existing infrastructures, "we recommend agencies move them to a cloud solution, such as Windows Azure, using mySQL, Apache, Ruby, Python or Perl to publish into Microsoft cloud," Adams said.

Interestingly, Microsoft SharePoint Server, is an important part of www.recovery.gov, the web site taxpayers can visit to track federal stimulus spending information. In addition, dozens of states, cities and counties are also using MicrosoftStimulus360 to keep both the federal government and citizens informed about how stimulus dollars are spent. And last November, NASA unveiled a "Be a Martian," project built on the Windows Azure platform that brings 'crowd sourcing' to interplanetary exploration so anyone can help NASA review and analyze images of Mars.

Commercial Interests

Ultimately, the potential for new insights and applications is enormous. The opportunity to take regulatory and compliance data, for instance, which changes by jurisdiction and is considered highly dynamic, and mash that information with transaction processing data inside government agencies offers a great deal of value in terms of revealing insights on what is built, processed, shipped and received by commercial enterprises, said Joshua Greenbaum, principal, Enterprise Applications Consulting, Berkeley, Calif.

Separately, geographic information systems (GIS) data can be used to help create more interactive, intelligent mapping of resources in a given area. GIS allows anyone to view, understand, question, interpret and visualize data in ways that reveal relationships, patterns and trends in the form of maps, globes, reports and charts. Greenbaum maintains there may be a need to put some limit on commercial interests in the information released via the Open Government Directive within federal departments. "If, for example, government data released is in raw form and isn't readily readable, a commercial entity could make a hefty profit purely from

making that information readable, charging a high price tag, and essentially not making information any more open or available to the public," he explained, citing LexisNexis as an example of an organization that at one time made enormous profit from the posting of legal case information.

Greenbaum asserts that the concept of open means there must be an open market for constituents to actually use the information made available via the OGD. With so much transactional information housed in the Commerce Department and Census Bureau, taking those data sets and marrying them to activity data available from Google, could build comprehensive results of great value to commercial industries. To illustrate, he explained how one could take data collected from the CDC on H1N1 and mash that with physician and pharmacy databases to target certain doctors in regional locations with higher levels of influenza, to sell more preventative flu prescription medication.

Information for All

The information to be made available on demographics alone, is of huge benefit, he added. "It's important this information is made readable and usable by everyone, from individuals to researchers and other public and private institutions, he said. Such information predicated on geographic and demographic data could help track survival rates from breast cancer to illuminate new patterns related to environment, region, status or other demographics that could have an impact on cancer survival rates, he explained.

The ongoing effort to build openness will force agencies to focus on data efficiency and the cost of management, according to Dean Halstead, collaboration architect for Microsoft Federal. Microsoft is working to help U.S. public sector organizations use COTS-based solutions to get up and running quickly in response to the president's directive. (See a separate, a step-by-step guide to Open Government compliance, on page s5.) Microsoft's tools can assist agencies in hosting data on premise, internally or in a cloud, based on each organization requirements, he said. "We have the virtualization components agencies need to help them take information, clean it and make it live on the internet," he said.

Push or Pull

The real change being brought about the OGD is in the new requirement to push information out to the public, rather than being forced, via the FOIA to pull specific information and share it. "Luckily, we have the tools and templates that can help any organization get data ready and running in just a few weeks," he said.

In addition to its work with NASA and the recovery.gov

web site, Microsoft is helping other federal civilian and defense organizations with posting information, quickly leveraging what they have in place to help them build the OGD-compliant systems they need.

The Administration's openness requirements put pressure on agencies to protect information, especially personally identifiable information (PII) and can often put agencies on a hunt for the best security technologies available, Microsoft officials said. "PII is a problem in every agency, and when

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we talk to customers, they often consider this element a 'bridge too far,'" said Halstead.

However, Microsoft officials assert that this issue has already been resolved for organizations in the medical field, via tools that ferret out social security numbers or other personal information, in workflow applications that can secure sensitive information by stripping out PII and protecting the information as required by each agency's policies and regulatory requirements. "The key is to look not for a new solution to resolve the PII challenge, but instead look at what's already in place inside the organization that can help support new OGDI requirements, and leverage those elements," Halstead explained.

Clean it Up

Looking ahead, it will be important to ensure the government data to be released is properly cleaned and

vetted, Greenbaum said. "How many times have we seen the Commerce department's take on something differ drastically from information produced by the Department of Transportation on the same subject?" he asked.

Data quality could become a thorny challenge, as more users work with data, "the public may think has an assumption of infallibility that may be undeserved," Greenbaum said.

Ultimately, if all federal organizations open their available information for public consumption, there's a good chance this will shine a light on the duplication and overlap that currently exists within these organizations. "A clear view into all available government information could bring very interesting results, and greater consolidation in the future," he said.

Steve Balmer, Microsoft's CEO recently spoke about the future of Open Government, in a prepared statement. "We're excited about opportunities to work with government and industry to take the next step by helping provide tools that let citizens and government agencies organize that data and turn it into meaningful, actionable information to help improve government services."

Following on the success of the Gov 2.0 Kit, Open Government Data Initiative, NASA's "Be a Martian" solutions and the numerous open government plans, templates and checklists, Microsoft is collaborating with numerous communities on specific turn-key solutions for the most challenging issues that face government and other public sector institutions. Microsoft's Open Government Initiative is being driven out of the U.S. Public Sector Innovation Center and looking to partner with federal, state and local governments as well as educational institutions on creative approaches to solving common challenges.. "The resulting open solutions will be released via CodePlex and other open source communities," Halstead explained. ❑

A Step-by-Step Guide to Open Government Directive Compliance

With more than 70 different activities, deliverables and milestones due within 100 days of the President's Open Government Directive, Microsoft quickly rolled out a series of 'templates' that can serve as useful tools to help agencies quickly establish priorities, track progress and outline key responsibilities to meet the requirements set forth in the directive.

Issued in December, the White House's Open Government Directive establishes deadlines, directs federal agencies and departments on the specific steps they can take to meet Open Government goals. Microsoft quickly responded to the president's directive, launching the www.microsoft.com/govready web site in just six days, to help agencies achieve compliance in six successive steps.

Step #1: Read the Open Government Directive. The directive establishes deadlines for federal agencies and executive branch departments to push forward efforts that will increase transparency, participation and collaboration in daily agency operations. For instance, to comply with the president's directive, each agency should by now have created an Open Government web page, to serve as the gateway for agency activities related to the Open Government Directive.

Step #2: Begin planning using a checklist. Creating a checklist is critical to delineating the key considerations each agency must consider in implementing an Open Government Directive. The checklist offered by Microsoft can help agencies plan for, deploy and properly protect information, while complying with the directive. Items to be checked off include identifying social media activities that will support agency goals, as well as the technologies already in place that will aid in implementation. Another item calls for agencies to consider whether licensed software or free technology such as Silverlight or rich internet applications (RIA) would be most useful to agency implementations. Microsoft's planning checklist is available for download at www.microsoft.com/govready.

Step #3: Consider using Microsoft's Open Government Plan Template. To build a plan and comply with the Open Government Directive, Microsoft developed an Open Government Directive Project Plan that can be used to help keep an a agency team on schedule. That plan is available www.microsoft.com/govready.

Step #4: Download the Microsoft Governance Plan for Social Networking. Using this Microsoft Gov 2.0 template, agency personnel can fill in details, modify as needed and quickly roll out a governance plan for social networking that will be ready for approval.

Step #5: Extend the use of Microsoft platforms and products. In addition to what is already used within most agencies today, there are additional free add-on tools and other resources that will help bring 'Open Government' to life in any agency. Many of these tools and other free resources were designed by Microsoft and the Web 2.0 community for Windows, Windows Live, Microsoft Office SharePoint Services and Windows Mobile. Among the add-ons are:

- **Live Mesh** – to sync, share and access information, www.mesh.com;
- **Community Kit for SharePoint** – to collect best practices, templates, web parts and source code, at http://cks.codeplex.com/;
- **Microsoft Silverlight** – to build applications that use the latest social tools and run on Windows-based technologies, www.silverlight.net;
- **The Open Government Data Initiative for Azure Services Platform**, at http://ogdisdk.cloudapp.net.

A complete list of free add-ons and other resources is available at www.microsoft.com/govready.

Step #6: Use Microsoft's Gov 2.0 developer's kit to create an Open Government web page. Microsoft's SharePoint accelerator templates can provide any agency with tools needed to create and build an Open Government web page on a fast track. Built on a common, open source code base, agencies can modify or improve the templates to meet each organization's specific requirements, offer feedback and feature suggestions, and adopt improvements made by others. The kit supports:

- Streamlined implementation of an Open Government web page;
- Timely publishing of information online in a format of the agency's choice;
- Public feedback using easy-to-deploy social connections and optional integration with Twitter and Facebook;
- Auditing and post-tracking. The kit can be downloaded at www.microsoft.com/govready. ❑

Cloud Interoperability Will Connect Agencies, Constituents

As public sector organizations evaluate cloud services as a way to consolidate IT infrastructures, scale systems and enable innovative Open Government services, technology vendors are working to resolve interoperability challenges.

Cloud interoperability is specifically about one cloud solution, such as Windows Azure, being able to work with other platforms and other applications, not just other clouds. Federal agencies and departments want flexibility to run applications locally or in a cloud, or in some combination of the two. Microsoft is working to ensure the promise of cloud interoperability becomes a reality. Microsoft officials firmly believe welcoming competition and choice will create more opportunities for public sector customers, partners and developers.

Eye on Earth

An example is the Eye on Earth project. Working with the European Environment Agency, Microsoft is helping the agency simplify the collection and processing of environmental information for use by government officials and the general public. Using a combination of Windows Azure, Microsoft SQL Azure and pre-existing Linux technologies, Eye on Earth pulls data from 22,000 water monitoring points and 1,000 stations that monitor air quality. It helps synthesize this information and makes it available for people to access in real time in 24 languages.

Microsoft's Windows Azure platform supports a variety of standards and protocols. Developers can write applications to Windows Azure using PHP, Java, Ruby or the Microsoft .NET Framework. In fact, many product developments are the result of diverse feedback channels Microsoft has developed with partners, customers and other vendors. In 2006, Microsoft created the Interoperability Executive Customer (IEC) Council, a group of 35 CTOs and CIOs from around the world. They meet twice a year in Redmond, WA to discuss interoperability issues. Meanwhile, Microsoft also recently published a progress report that shared operational details and results achieved by the council across six work streams, or priority areas. And the council recently commissioned the creation of a seventh work stream for cloud interoperability, aimed at developing standards related to the cloud, working through operational priorities such as data portability, and establishing privacy, security and service policies in cloud computing environments.

Microsoft also participates in the Open Cloud Standards Incubator, a working group formed by the Distributed Management Task Force (DMTF), a consortium through which more than 200 tech industry suppliers and customers develop standards for systems management. AMD, Cisco, Hewlett-Packard, IBM, Microsoft, Red Hat and VMware are among suppliers that lead the Open Cloud Standards Incubator, creating technical specifications and conducting research to expedite adoption of new cloud interoperability standards.

Microsoft is also part of Simple Cloud, an effort it co-founded with Zend Technologies, IBM and Rackspace designed to help developers write basic cloud applications that work on all of the major cloud platforms.

Microsoft is also helping to build technical 'bridges' between Microsoft and non-Microsoft technologies, such as the recently released Windows Azure Software Development Kits (SDKs) for PHP and Java and tools for Eclipse version 1.0, the new Windows Azure platform AppFabric SDKs for Java, PHP and Ruby, the SQL CRUD Application Wizard for PHP, and the Bing 404 Web Page Error Toolkit for PHP.

Microsoft officials said the company "will continue to support an open dialogue among the different stakeholders to define cloud principles and incorporate all points of view to ensure that in this time of change, there is a world of choice." ❑

Tips to Aid Agency Open Government Initiatives

Microsoft officials offer several 'best practices' tips and advice for how to ramp up an agency's Open Government Directive efforts, including the following list of tips:

1) Start by checking agency policies – Some agencies have policies that prohibit employee participation in mainstream social media or restrict contributions from partners or citizens to agency online networks and sites, although some are considering modifications to improve agency interactions with citizens and partners. Before engaging in social media, make sure the agency's efforts are in compliance with existing policies.

2) Engage with peers, partners and citizens on a personal basis – Join an existing online community or start a new one. Suggested options include:

- Create a Facebook page or LinkedIn profile and join relevant groups.
- Join a community, such as GovLoop.
- Create a Twitter account and follow friends or acquaintants.
- Create a Windows Live space and invite friends to that network.
- Start an agency-focused community for peers, partners, or citizens on an existing agency platform.

3) Talk, listen, and learn – Establish an agency strategy for driving conversations with peers, partners and citizens.

4) Define the agency's Open Government Directive goals – This includes defining the audience, of which there may be more than one, and outlining which conversations the agency should have with each audience. It's also important to plan for how to document and use any information gathered.

5) Establish guidelines – Determine what online communications and contributions from agency staff, partners and citizens are permitted by existing agency policies, and establish project guidelines to ensure that these policies are followed. Some agencies may also need to consider updating policies that restrict the ability to share conversations and non-personal data with employees, partners and citizens to achieve open government goals.

6) Start something – Join the mainstream online communities where the agency's audience are already talking. If the agency must create a community, investigate whether using existing technologies, such as Microsoft Office SharePoint Server, can help in setting up blogs, wikis, or communities the agency can build and learn from. Or, evaluate hosted services to help get started quickly with minimal costs.

7) Build a foundation – Plan now to extend conversations later. Whether it's secure access from laptops or mobile devices or connecting with field staff or citizen kiosks in public places, start planning a secure and reliable foundation to support both private and open conversations and to make citizen services easier to consume. If the agency plans to capture personal information, make sure the organization can handle this information in compliance with federal security and privacy requirements.

8) Share data – Consider sharing non-personal data with third parties. Some external organizations may have a built-in audience for that information, particularly if given the ability to combine agency information with other data to integrate operations and reporting. These organizations may also be able to mashup new applications that streamline government processes or better serve citizens.

9) Promote, promote, promote – Get the word out about the new communities open for discussions. Use the agency's involvement in mainstream communities to promote the efforts. Agency promotions could even include mention on agency web sites, e-newsletters, events, printed materials and media opportunities to communicate with target audiences and promote agency communities and ongoing discussions. ❑

Source: Microsoft

NASA Unveils Imagery Allowing Anyone to Explore The Red Planet

NASA's new citizen-science web site, "Be a Martian," allows anyone to view hundreds of thousands of images of Mars, gathered over decades of exploration on the Red Planet. Visitors can pan, zoom and explore the planet through images from Mars landers, roving explorers and orbiting satellites dating from the 1960s to the present, including many images that have never before been seen.

Designed as a game with a twofold purpose, NASA and Microsoft hope the web site will spur interest in science and technology among students around the world. The site is also considered a valuable 'crowdsourcing' tool, designed to tap visitors' brains and help the space agency process volumes of Mars images.

Visitors earn points and can build an online reputation by helping NASA examine and organize its Mars images. A game called Mapping Mars lets users align images with the same geo-coordinates to build a global map of the planet. Another game has visitors count craters to help scientists understand the relative age of rocks on Mars' surface.

Housing all of the images is 'Dallas,' an information service that sews up neatly with the front-end Silverlight application. 'Dallas' was designed to make it easy for web developers to access and serve information.

U.S. Chief Information Officer Vivek Kundra helped unveil the "Be a Martian" project last November. Built on the Windows Azure platform, using a Silverlight application and a new service called 'Dallas,' which houses all information, the project was created through an agreement between NASA's Jet Propulsion Laboratory and Microsoft, with contributions from Arizona State University and, through a grant by Microsoft Research, Oxford University.

Microsoft and NASA used Silverlight to build an interactive application that can run on any major browser. Decades of research represented by terabytes of information, are all now available for the public to peruse and comment on. It's tough to compete with the images NASA has collected over several decades of space exploration. And Silverlight's support for high-definition video was a natural choice for building a web application that showcased the space agency's amazing imagery, Microsoft officials said.

These 'citizen science' initiatives are a great way to engage the public and create useful metadata that helps scientists organize and prioritize their research. An example of this is Oxford University's Galaxy Zoo. Oxford consulted with Microsoft on the NASA project via a grant from Microsoft Research. The power of citizen science is a critical mass of people – hundreds of thousands on the Internet doing millions of classifications – compared to a dozen graduate students in a basement doing a few dozen classifications per day. Users of Galaxy Zoo even discovered a new type of celestial body. Microsoft officials said the "Be a Martian" project has similar potential.

The need to keep pace with demand for server resources prompted the outsourcing of processing power via web services. On the "Be a Martian" site, NASA and Microsoft were able to employ the Windows Azure platform, using Silverlight and 'Dallas,' to make large mission data sets available and easy to access, opening a world of exploration for visitors to the site.

Powering the site is Microsoft's cloud latform, Windows Azure. Azure provides the web-based operating system that links information residing in a service such as 'Dallas' with the Silverlight application. Processing power is provided from Microsoft data centers around the world. This type of cloud computing system resolves the challenge of making a huge up-front investment in servers. Windows Azure, provides the ability to scale to meet any level of demand. The system dedicates an appropriate number of processors for the application, whether it's used by 250, 250,000 or 2.5 million people simultaneously. According to Microsoft officials, the ability to scale and serve any number of users enables the educational power of crowdsourcing and citizen science to be realized. ❏
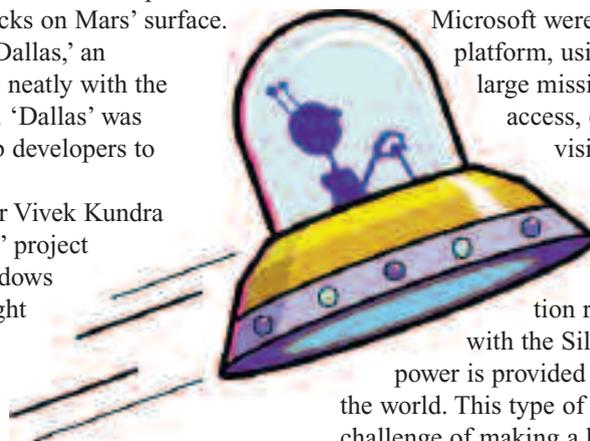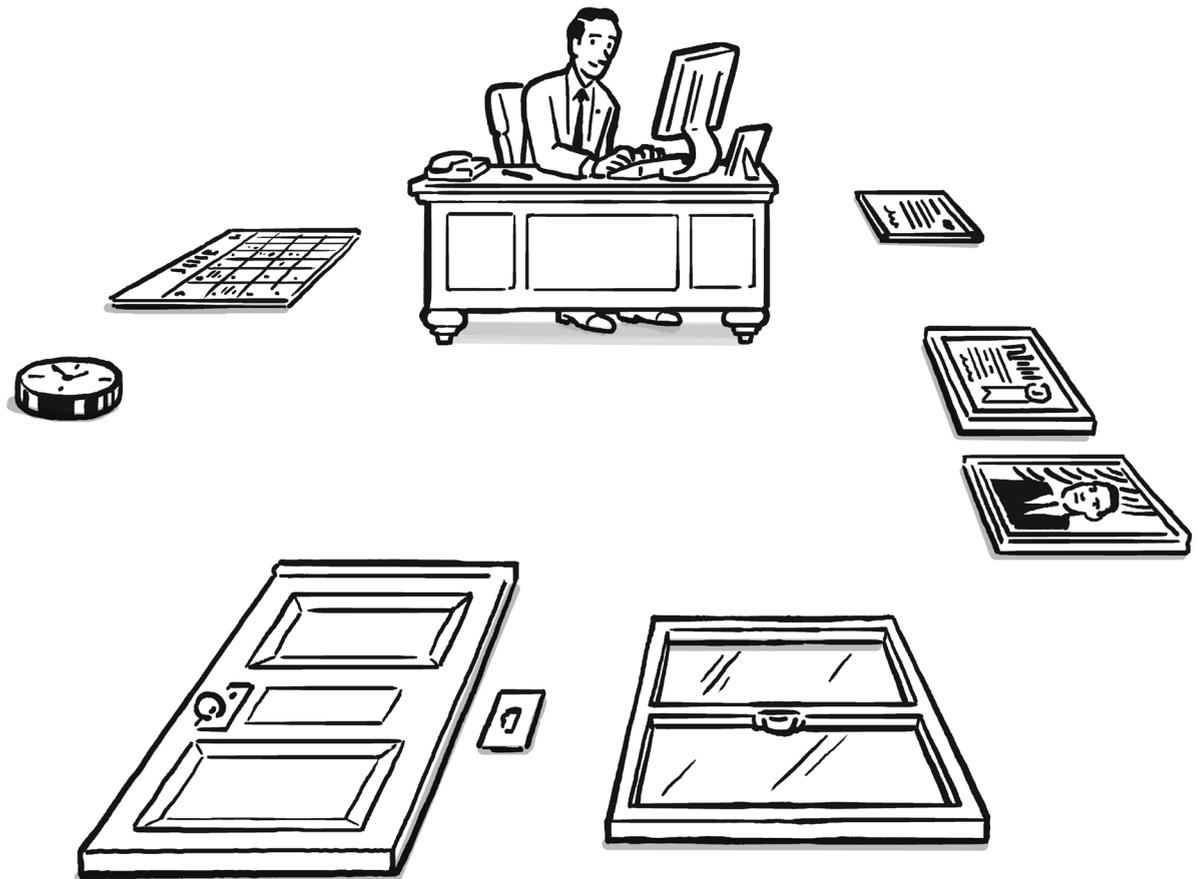
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