

10 minutes on... Safety and Digital Mobility

*How digital
mobility can help
you with your
safety challenges*

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The Internet of Things

The Internet of Things (IoT) is driving digital mobility faster than ever. At its heart, IoT is about connectivity – all forms of electronics are being linked to the internet, and to each other – transforming everyday physical objects that surround us into an ecosystem of information that will enrich our lives.

Already, this higher level of connectivity has begun to lead to more and better data available for consumption and analysis. This then allows for the use of predictive analytics on the collected data to help inform decision-making and the use of mobile applications and devices for safety-related purposes.

Training and education will also greatly benefit from the convergence of safety and digital mobility. The workforce will have increased access to remote training, as well as on-the-job information that travels with them.

In the near future, IoT will drive an increase in the usage of products like beacons and geo-fencing, which will improve controls around safety on job sites. Similarly, the applications for wearable technology will broaden and deepen.

Gaining the ability to collect and analyse data on an individual level will allow for tailored, personalised approaches to safety management.

A day in the life

A safety specialist at an open cut coal mine is called to perform a safety check on a mining haul truck. She pulls on her geosensor-enabled fluoro vest, grabs her tablet with the pre-loaded site auditing application and heads out the door.

While en-route, her location is tracked from the office and the relevant truck driver is notified of her arrival. As she pulls up to the site, the sensor in her vest notifies all nearby machines of her presence and exact location.

When the specialist nears the truck, a sensor in the tablet would talk to one of a number of Beacons on or near critical parts of the vehicle. The tablet is only then activated and automatically loads the relevant Job Assessment Tool. If the specialist moves too far away from the truck, the application pauses until she is back within close proximity.

Once the assessment is completed, the data is automatically uploaded to the server, allowing instant, detailed analysis to be conducted on any issues presented in the assessment.

What's happening now?

To help managers reach the goal of a zero-harm workplace, we see a number of digital trends currently in the marketplace that can help improve workplace safety:

- A wide variety of **mobile applications** can be built to solve safety-related issues, such as:
 - removing manual and time-consuming processes;
 - conducting job safety assessments and inspections;
 - identifying, logging, managing and reporting risks by taking photos, recording incidents and then uploading the supporting evidence; and
 - linking to databases which provide real time insights on issues and resolutions.
- Increased investment and uptake in **sensor technology** across a range of industries can be a key link between IoT, digital mobility and safety. Sensors are relatively low cost and low energy devices that can capture a wide variety of information, allowing businesses to leverage that data to help improve productivity and safety. Safety managers are provided with a ubiquitous, low-cost, data collection device that gives better visibility into operations and therefore improve context-specific decision-making.
- **Wearable devices**, such as Fitbit and Jawbone, have evolved from simply measuring users' steps to measuring heart rate, respiratory, oxygen and emotional states. The recent launch of the Apple Watch may well be the next step in this evolution. It is worth exploring how various industries are using these devices to identify applications with which to pilot and experiment. For instance, body mounted displays, lanyards, feedback devices and smart clothing could be tailored to improve aspects of a company's productivity and safety. On the other hand, developing a customised device may not be necessary, as an off-the-shelf product may be sufficient to meet a company's needs.

Site Audit App

A Site Audit application was created for a major oil and gas company in order to remove existing manual processes. This allowed the company to more efficiently collect safety and logistics information for their various work sites.

Through the app, information is collected via checklists, site descriptions, photographs and sketches, and integrated seamlessly with existing Salesforce and Sharepoint software via a customised mobile application. This ensured all business units, employees and business customers could easily and readily access relevant information in real time.

Through the development of a strategy deployed through a single platform, the application was able to help the company create an environment that will enable them to continue to solve business inefficiencies through application solutions.

What's coming next?

The swiftness of technology advancement is astounding, with emerging technologies rapidly maturing and being deployed within the workforce. This is particularly true in the case of wearables and the impact they will continue to have across enterprise environments.

We expect to see the following key trends emerging:

- The implementation of **beacon technology** in the workplace will demonstrate how heavy machinery and workers can be further supported by smarter technology. Beacons allow for device interaction based on proximity, for instance by communicating with a nearby smartphone application. Beacons can also house sensors to capture and transmit data, which can help to track and manage minor and major safety-related interactions undertaken by workers and machinery.
- The uptake of **smart clothing**, where sensors are woven into the fabric of clothing such as pants and shirts. While this may initially be applicable to the consumer market, there is potential for this trend to increase in scale across enterprise, particularly in areas where the safety, health and well-being of workers is paramount.
- The release of **biometric wristbands**, such as the Nymi device, takes identification one step further. This is a biometric identity device that lets you use your heart's unique signature to authenticate and confirm your identity. This could provide organisations with a seamless way to ensure security around restricted areas, such as providing access to equipment and vehicles in a secure and safe manner.

dorsaVi and ViSafe

In 2014, the medical device company dorsaVi announced the acquisition of Australian Workplace Compliance to increase its service offering in the work health safety (WHS) market.

Their ViSafe product is key to this offering, as it is a device that assesses and manages risk in the workplace by objectively measuring employees' movement and muscular activity through a wearable device strapped to a users body.

This allows clients to use evidence-based strategies to eliminate, reduce and better manage physical work demands, thus reducing injury rates and work related costs.

A little further down the road

While longer-term trends can be difficult to predict due to the speed, penetration and uptake of various digital and technology applications, there are aspects of digital technology which PwC continues to track.

- The emergence of **Geofencing** technology may be heavily utilised in hazardous work environments. For instance, the technology can be used to create a virtual barrier to help prevent workers and machinery from coming into contact with known hazards. As it matures, there will undoubtedly be many applications for this technology to aid in worker's safety.
- **Speech recognition** technology, the process whereby spoken words are converted to digital text, has been around for a long time. However, Google recently improved its voice-recognition accuracy in search to 92 percent. This technology could be combined with any number of others previously mentioned to further improve on the accessibility and usability of mobile technology for safety applications.
- **NoSQL databases** can flexibly manage and make sense of the growing amount of product, environment and safety data. These databases are fast, agile, scalable and flexible. As companies look to take advantage of new sources and increased amounts of available data, NoSQL databases will provide benefits to the business by powering mobile, web and IoT apps, handling vast quantities of unstructured data and driving more detailed and advanced analytics.

There continues to be a multitude of digital and mobile technology coming to the market place. However, understanding your business goals and users' needs (user experience) is paramount to implementing the right solution to meet your challenges.

Oculus Rift

Oculus Rift is a technology company that produces a high-quality virtual reality headset for immersive gaming. Facebook's 2014 acquisition of the company shows that it (and the market) sees the potential for a much wider application of the technology. For instance, it could have a big impact on enterprise and safety applications from a training and education perspective.

Using these virtual and augmented reality technologies, companies may be able to provide 'live', immersive training (virtually disassembling and re-assembling a 3D rendering of a complex piece of machinery) and education (presenting safety policies and procedures through a virtual walkthrough of the site and potential hazards) from the safety of the classroom.

In addition to better access to training and education for remote workers, businesses would also benefit by reducing travel time and costs.

Challenges and next steps

Challenges and opportunities

With any new and emerging opportunity, digital mobility solutions are not without their challenges. To fully realise the benefits and opportunities digital mobility promises, social, legal and technical challenges will need to be addressed, such as:

- **Privacy concerns** – Increasing volume and collection of data makes ensuring its security and protecting the user's privacy is an ongoing challenge.
- **Industrial relations** – Similar to the above, the increased recording, capture and analysis of personal data may be met with resistance from workers.
- **Human factors** – learning and using new technology. Using it safely and efficiently.
- **Technical issues** – On the technical side, businesses must consider how new technologies can integrate with existing systems and capabilities to ensure connectivity across different platforms.

PwC can help by working with you to:

Show, not tell

When selecting a partner for mobile enterprise technology, companies looking to move the dial need a realigned method that can deliver immediate benefits. They need vendors that are able to show real examples of work, demonstrate agile development methodology and provide access to the labs and talent they will be working with. Businesses in turn must be willing to experiment and pilot projects in order to place emerging technology at the forefront and support cross-functional leaders to see real benefits on how digital technology can improve productivity and safety.

Enforce security without impeding your business

Protecting data and devices from unauthorised access is essential. At the same time, organisations also need



systems that do not unduly burden key users, impeding usability and slowing productivity. The ability to strike that balance is difficult, but will ensure better use of the systems in place.

Understand that mobility is not just IT

Organisations that relegate mobility to the IT department miss out on the broader perspective of the leadership team and key business users. Your mobility strategy must be integrated throughout the business to ensure commitment and uptake.

Integrate your mobility strategy

By integrating your mobility strategy with the overall business strategy, you will be well positioned to take advantage of the seismic shift that is transforming the way customers and staff communicate and do business.

Executives should consider how digital products can be used strategically within their businesses to improve safety outcomes, reduce costs and ultimately improve the performance of their company.

Talk to us

To have a deeper discussion about these issues, and to understand our design and development capabilities of our digital change practice, please contact:

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