SUSTAINABLE INNOVATION IN ACTION:

THE CASE STUDY "SNAPSHOT" SERIES

BMW i3

An Eco-Friendly Drive for Better Air Quality

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About EU-InnovatE

Between 2014 and 2016, the EU-InnovatE project investigated the potential of citizen innovation and sustainable entrepreneurship to achieve sustainable lifestyles in Europe by 2050. The following is one of a series of case study "snapshots" illustrating how new enterprises are being created by passionate, visionary individuals to benefit society at large.

The Case of the BMW i3:
An Eco-Friendly Drive for Better Urban Air Quality

In the light of growing concerns about greenhouse gas emissions from cars and their impact on pollution in cities, BMW set out to develop an eco-efficient urban vehicle. The company's breakthrough innovation was to engage motoring insiders and end users throughout the design and development process with a view to minimizing the new car's environmental impact.

BMW i3: A New Blueprint for Eco-Friendly Cars

BMW's first full-production electric vehicle, the BMW i3, has a range of over 150 kilometers before the need for a recharge. Throughout its entire life cycle, the i3 has been designed to have an environmental impact that is a third less than equivalent cars running on fossil fuels. This has been achieved through efficient manufacturing processes, lightweight vehicle construction using carbon fibre-reinforced plastics (CFRP), and a design that ensures maximum end-of-life recycling. In addition, BMW offers its customers charging points for home use and a scheme to supply electricity generated from renewable sources.

BMW i3s are built with 80% recycled or renewable aluminum and 25% recycled or renewable plastics. Enhanced production techniques ensure a 50% reduction of CO2 emissions in building CFRP components compared with conventional production methods. Production also uses energy that is 100% renewable, and requires 50% less energy and 70% less water than for comparable vehicles.

Collaborative Innovation in Practice

The BMW i3 was developed through a process of 'co-creation'. Rather than relying solely on internal perceptions, BMW chose to consult end-users and other stakeholders for ideas about the development of an electric vehicle (EV). The aim was to create a car that would have a low environmental impact and be used in an urban environment.

Initially, a project team visited 20 major cities worldwide gathering information from transport and environmental specialists about people's mobility needs and expectations for the future.

For the next stage of the i3's development, BMW turned to its pioneering Co-Creation Lab. This is an online virtual meeting place for individuals interested in cars and all related topics. It enables BMW to 'crowdsource' citizens' opinions about current mobility challenges and to better understand emerging needs and trends. To provide the company with further input, the Co-Creation Lab hosted a public competition that captured user perspectives and ideas about electric vehicle (EV) issues, such as charging infrastructure, parking facilities and the linkages between road and rail transport systems.

Finally, field trials were arranged in several countries in which participants drove BMW i3s regularly. This provided feedback on practical everyday usage and, additionally, gave a measure of the importance to drivers of their environmental impact. Information was gathered through multiple channels, including user diaries, interviews, questionnaires and group discussions.

BMW was assisted in the development process by Munich-based innovation agency HYVE, which acted as the coordinator for the Co-Creation Lab. This included setting up and maintaining the Lab, carrying out dialogues with field trial participants and reviewing feedback.

Summary of User-Driven Innovation

- User-centred development at BMW was characterised by stakeholder involvement throughout the entire i3 development process.
- Initially, BMW talked with industry specialists to determine needs and firm-up the company's ideas about EVs and their related services.
- In the later stages of development, consultation with EV users provided an understanding of their needs, fears and expectations. Addressing the issues raised, increased the i3's chance of business success.

Influence on Core Business

By adopting a user-centric development approach, BMW chose to move away from conventional incremental development of its vehicles. It embraced risk-taking and encouraged novel innovations, while reducing the chances of market failure. The business model involved the establishment of an independent innovation team that worked across functions. It had senior management support and funding to achieve its objectives. The model's form had similar characteristics to cross-functional R&D teams.

Cross–Sector Relevance: Top Three Insights

- Users can be a valuable resource in facilitating green product and service innovations; this changes established perceptions about the role users should take in product development.
- User feedback can provide practical checks and balances when step-change innovation is proposed.
- User-centric development could be transferred and applied in many different areas of an enterprise.

To Learn More About the Case…

Please contact the lead investigators from the EU-InnovatE research team:

Henrike Purtik, German Chamber of Commerce and Industry (and TUM School of Management during the project) – purtik@muenchen.ihk.de

Eric Zimmerling, TUM School of Management – eric.zimmerling@tum.de

Further Information

BMW i3:	www.bmw.com
	www.thebmwi3experience.com
HYVE:	www.hyve.net/en/
TUM School of Management:	www.wi.tum.de