The market was moving towards a newer and faster generation of bikes, making style oriented bikes, such as Harleys, not as appealing. Because of this, Harley-Davidson began to lose business and recognized the need to adapt to the rapidly changing market. Harley’s traditional engines were not as fast as their competitors’ performance bike. Harley, in order to keep up with the times, decided build from scratch a new bike.

Harley’s main problem with their traditional bike was that it was not as fast as other company’s superbikes. In order to keep up with their competition, Harley needed to increase speed in their new bike while keeping their classic Harley-Davidson style. This was a large problem for Harley because they needed to start from scratch with this new bike. This was a newer situation for the Harley design team because the only new bikes they built from “scratch” were their factory custom bikes. These bikes were based on previous designs, but included a unique style with customizable parts that riders wanted.

Harley looked into drag-racing bikes for new, elongated designs that their customers wanted. They knew that their performance engine was one of the fastest in the racing industry and incorporated a liquid-cooled engine. This liquid-cooled engine allowed for the engine to have more horsepower and reach higher RPM without the engine overheating. Through observation of other companies and other designs, they were able to brainstorm and create conceptual designs.

Once Harley decided to use their performance racing engine, the VR-1000, the designers began to create a street-legal version of it. But at the same time, the engine still had to have the sound and appearance of a traditional Harley engine. In order to accommodate these new
designs, Harley looked to their designers to see how they could accomplish the task with these new requirements. Following the basic designs, the engineers had to work together with the designers in order to keep the performance edge, while keeping the bike looking like a traditional Harley.

The designers and the engineers had to work very closely together to find a middle ground that utilized both performance and design. This created a tug-of-war effect because the engineers were going one way with the performance designs and the designers were going in another direction with the visual designs. Through this process, both teams created many designs through trial and error, but did finally agree on final ideas that both the engineers and designers could accept.

Through this trial and error process between the designers and the engineers, a new design for the frame of the bike was created to fit the heavier and larger street version of the VR-1000 engine. For instance, the engineers created a structurally sound frame that was able to hold the engine, however the design team said it was not up to Harley visual standards. The designers then gave the engineering team their idea for the frame, which the engineers claimed was impossible to construct using traditional manufacturing methods. One of the engineers looked into a new technology called hydro-forming, which used water pressure to shape and form the metal tubing into a structurally sound and stylish frame design.

Harley created their first prototype about a year after their first designs began. The main problem with this first prototype was that it did not look stylish whatsoever, but it was faster than any traditional Harley bike created. In order to make the engine last longer and still maintain street standards, Harley looked to Porsche motor company in Germany for help with their designs. This is when Harley created their V-Twin style, liquid-cooled engine. After Porsche
and Harley engine builders had created many prototypes, they began testing them in extreme conditions such as: long runs in heat, on bad roads, and weather. After several years of design and testing for this new engine, they finally had a product that passed all of their tests, including Harley visual standards.

The different teams all worked together to help create a final design that met each of their standards. This “design cycle” allowed for different types of people to bring their diverse ideas together to build their final bike design. Through communication of these groups, every aspect was integrated into the final design. It allowed for the combination of performance and style that was necessary to meet the market standards, and still have the classic Harley look.