



# Innovation @DSM Sustainable solutions for a changing world

Rob van Leen  
Chief Innovation Officer

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HEALTH · NUTRITION · MATERIALS

## Mission

Our purpose is to create brighter lives for people today and generations to come.

We connect our unique competences in Life Sciences and Materials Sciences to create solutions that nourish, protect and improve performance.



Health Nutrition Materials



DSM is a €10B company, HQ in the Netherlands, employing about 23.500 people all over the world. We are active in a wide field, ranging from Health, Nutrition towards Materials. This broad spectrum of activities enables the company to utilize an extensive set of complementary competences from the fields of Life Sciences and Materials Sciences. We call our competences our Bright Science and utilize this to provide solutions that nourish, protect and improve people's lives.



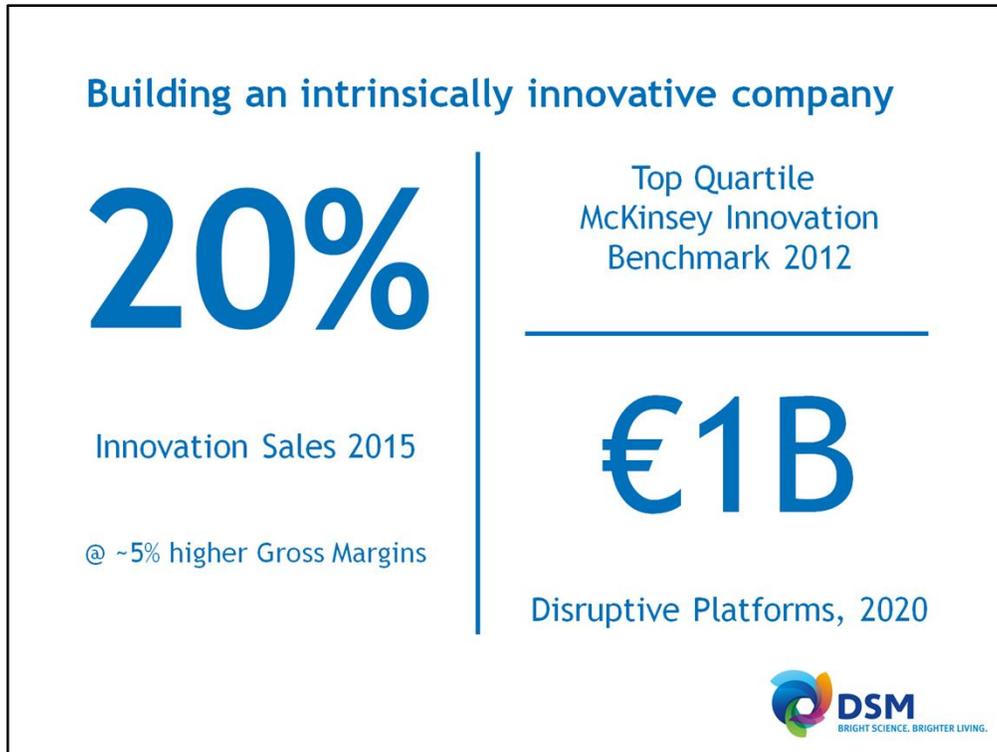
We focus our innovations on the great challenges that our society will be facing as the worldwide population will be growing towards 9B people, or anywhere between 8 and 10 depending on the forecast you trust mostly. No matter the final number, we can be certain that there will be a further growth of the population AND that global shifts will take place in which many more people will enjoy a higher standard of living. This will heavily increase the burden on the resources of our planet, creating fundamental scarcities in the field of food and nutrition, healthcare, energy and materials.

These are the area's that we focus on to develop new activities for our company.

Sustainability is a core value underlying all of our activities. Our 3P approach – People, Planet and Profit – guides our actions. The innovation themes Health and Food & Nutrition Security both direct us to create solutions that will help us improve peoples lives. It means sustaining even saving peoples lives, through better nutrition, pharmaceutical products, improved materials for medical procedures as well as materials in protective clothing and non-toxic waterborne paints.

The themes Energy Security and Raw Materials & Sustainable Manufacturing focus amongst others on creating products that are Eco+, which means that they have a lower carbon footprint than the existing products in the market. We have formulated a target of 80% for our pipeline; in the previous year we even reached 94%. Within these themes we also look at new solutions for energy demands, from coatings for solar panels that improve energy capture, towards utilizing biomass to replace fossil resources.

As our People and Planet activities are addressing real needs from society, the solutions that we create are in great demand. This means that we continue to improve our market positions as well as our margins, thus driving our Profit, which is a necessity, as this ensures the continuity, or sustainability of our company.



We believe that in addition to all creativity and serendipity that often seem to magically surround innovation, it is of the utmost importance to have clearly structured processes and a sharp definition of the goals that we want to reach.

We strive for a continuous renewal of 20% of our portfolio every year. This rate ensures the best balance between having the newest products available for our customer and allowing for sufficient time to actually get a good return on the activities as well. As already mentioned, we strive towards an innovation pipeline that is >80% Eco+, we often surpass that number. As a result, also our innovation sales typically has higher gross margins, so drives our profit.

We utilize a dedicated process to establish new business platforms outside the scope of our current Business Groups. It is our aim to have a turnover of €1B in 2020 from these.

And of course we continuously improve ourselves, by sharing best practices within the company, training our people to further improve their skills. We monitor this process through the McKinsey Innovation Diagnostic that we execute every two year. In 2012 we reached the top quartile of our industry.



Within existing businesses the majority of the innovations is incremental. Breakthrough developments definitely occur - frequently I would say - yet in the majority of cases businesses stay within the realms of what they know. We all know this, this is why so many leading companies ultimately lose their position.

Our way to solve this, is to organize disruptive growth platforms separately from the existing businesses, allowing these units to act almost like a start-up (but with all the skills and competences of the large firm still accessible) and prove their proposition towards a young mature stage.

This approach has been developed partly internally, partly we also learned from experiences in other companies.

We call these platforms, these business units, "Emerging Business Area's" and they are housed within the DSM Innovation Center. Currently we have 3 EBA's up and running, at various stages of maturity. In addition our Business Incubator continuously searches for new platforms that can be turned into a new EBA.

## EBA - Bio-based Products and Services

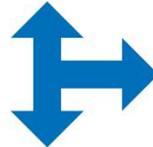


### Biochemicals

Bio Succinic



Building blocks for bio polymers



Biotechnology platforms to enable conversion of **cellulosic** biomass into useful products

### Bioenergy

Bio Ethanol



BioDiesel  
BioGas



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Great examples of our innovations are provided by the activities in our EBA Bio Based products and Services. Within this EBA we utilize our vast biotechnology skills to fundamentally change the value chains of carbon based energy and raw materials. Currently the dominant amount of energy and raw materials is based on fossil resources. We don't believe that this situation can last much longer. At a certain point in time these resources will run out, yet much earlier it can be expected that the costs of exploiting them will rise and the pressure on our Planet will increase.

Both biofuels and biochemicals are commercial today, yet many people are concerned that the use of the lands and the edible crops itself will put a strain on the global food production. We focus a lot of our resources on converting *cellulosic* biomass, the waste so to say into useful products so that the often quoted *food versus fuel* issue can be elegantly turned into a Food AND Fuel offering.

Early 2014 we will start up the first cellulosic bioethanol plant in the world together with our partner POET.

Already this year our first commercial unit for BioSuccinic started up and we are now supplying bio based succinic acid to the industry, where it is used in a variety of applications amongst which as a raw material for bio based plastics.



One of our other EBA's, DSM Biomedical is turning into a classical example of the creation of disruptive platforms through the EBA concept. Originally our biomedical activities started within the Dyneema® Business group, back in 2000 with a R&D project on the development of the Dyneema Purity® fiber. This led to a very successful launch of this product platform in 2004, after which we decided to search for more opportunities in this field.

In 2006 we started the EBA Biomedical to bring together various internal activities in medical coatings, drug delivery as well as in-licensed technologies, venturing investments and acquisitions. This enabled us also to develop novel business models, quite different from the ones in the existing business, but pretty uniform within the EBA. We have acquired several companies, the latest being the Kensey Nash corporation (2012).

DSM Biomedical has the broadest materials and technology portfolio in the market. It enables us to also make steps towards the holy grail of the medical profession, regenerative medicine.

With our broad portfolio of materials we have a growing reach to end-users. Currently we improve 4.4 million people's lives every day, with our materials being used in a wide range of devices, from contact lenses towards life saving implants for cardiovascular procedures.

Summarizing, our system of EBAs forms a very effective tool to create value in new growth area's. In the first half of this year (2013) the combined revenue was €75M, of which currently the major part comes from DSM Biomedical.

