



Lego

JOHN BESSANT
Managing Innovation

Lego – playing a good innovation game



Lego has come a long way from a traditional toy manufacturer in Denmark to being a global player in the highly competitive world of children’s toys and entertainment. This case highlights some of their innovation history and gives some insights into how they coped with the significant challenge of a digital world colliding with their traditional physical toy world.

Beginnings....

The Danish company Lego is one of the most famous brands in the world when it comes to children’s toys and has grown since it was founded in 1932 into a global business. Its origins lie with Ole Kirk Christiansen, a carpenter from Billund (where the firm is still based) who bought a woodworking business in 1916 and made furniture for local farmers. For various reasons he shifted his production range in the 1930s to make children’s toys and in 1934 named the company ‘Lego’ from the Danish words leg and godt, meaning ‘play well’.

His early products – wooden pull toys, piggy banks, cars and trucks – were reasonably successful but a key turning point for the business came in the 1940s when they began making plastic toys including a truck which could be taken apart and re-assembled. In 1949 Lego began producing a set of interlocking bricks (based on an original patent by the UK Kiddicraft company for which they bought the rights) made from cellulose acetate and using an early version of a hollow design with holes and studs. The now familiar Lego bricks appeared on the market in 1953 but were not initially very successful, partly due to poor perceptions amongst consumers and retailers of plastic toys.

Systems and platforms

The key was probably the emergence of the idea of a building system based on interlocking bricks – an idea which took some time to develop and is closely linked to the son of the founder, Godtfred Kirk Christiansen. His discussions with buyers, especially in the USA, helped the idea of an architectural innovation – a product platform on which many different designs could be built – to mature. Much work was needed to improve the design to give better locking ability but gradually the concept became reality and 1958 saw the emergence of the patented basic brick design with which we are still familiar. By 1959 the company had stopped making wooden toys and concentrated solely on plastic bricks and related products.

A series of product, process and market innovations – adding wheels, figures, targeting and segmenting different markets, switching from cellulose acetate to acrylonitrile butadiene styrene (ABS) plastic, adding instruction manuals, etc. – helped fuel development such that by 1988 there were over 50 elements in the Lego toy system. The company opened a theme park in 1968 which displayed miniature towns with a variety of features all made from Lego bricks – and which attracted over 600,000 visitors in its first year of operation. The power of the underlying architectural innovation becomes clear in the expansion routes followed – developing simple large bricks ('Duplo') for very young children and sophisticated gears, joints, axles and other materials for older 'Lego Technic' builders – all using the same principles and all interchangeable. Underpinning the physical toys was a growing element of 'storytelling', using home grown stories like medieval knights, pirates or space adventures but also linking into key film themes like 'Star Wars'.



Growth years ...

Growth continued throughout the later years of the 20th century with Lego becoming one of the top ten toymakers worldwide, and with a wide range of products standing on their basic platform. The range not only diversified – including train sets, model cars and simple robotics – but also extended the architecture to include control and programmability to support such toys. Storytelling increasingly targeted different segments – for example Belville was a product aimed especially at girls whilst Bionicles introduced complex Technic-based action figures for boys.

It is worth putting the power of the basic architectural/platform innovation in perspective. With just two bricks there are 24 different combinations, and with six there are 915 million possibilities, so the range of options – both designed by Lego but also created by end users – is huge. Estimates suggest that over 400 million children (and a fair number of adults) play with the bricks for around 5 billion 'play hours'. Yet the original design still holds – apparently bricks made today can still interlock with those made in the first batch of 1958. Not surprisingly Fortune magazine named Lego as 'toy of the century' in 1999.



Troubles on the horizon...

However by the late 1990s the company had begun to run into difficulties. In their main product area low cost 'good enough' quality competition was making inroads into their market – a classic example

of disruptive innovation similar to the low cost airline revolution. For example a Canadian company, Megabloks, began offering a wide range of competitively priced building toys which rapidly pushed Lego along the shelf space of many stores. At the same time a large section of their traditional market – young boys – was increasingly being drawn away from building models and into the world of computer games. And finally Lego was a global company but based in a high cost economy – Denmark – with resulting pressure on its operations to remain competitive. Its supply chains were long and expensive – at one stage with 11,000 contractors Lego had more suppliers than Boeing used to build its aircraft! And its product development had become increasingly complex, with many product ranges involving such a wide range of choice – for example the Pirate figures had no less than 10 different leg designs, each with its own clothing – that it became difficult to manufacture economically.

The combination of these circumstances saw the company increasingly losing money and market share and the crisis peaked around 2003 with a reported loss of \$240m and fears that the giant Mattel company would take over Lego. The tradition of hands on family management ended with the stepping down of 3rd generation Kjeld Kirk Christiansen and the appointment of a new CEO appointed, Jorgen Vig Knudstorp.

His arrival, plus the injection of \$178million from the family, allowed a breathing space within which a turnaround could be effected. The transition – although painful – seems to have worked with the company back in profitability by 2006 and in 2007 turning in its best-ever financial performance. It involved extensive rationalization and cost-cutting in areas like supply chain and factory location, together with a rethink of the product development strategy. For example the number of unique pieces being manufactured in Billund was cut from 12,400 to around 7,000. But it also included extensive learning about new ways of working with users as designers as part of the product innovation approach.

New approaches (1) – engaging users...

Users have always been involved in the Lego concept since – as we saw earlier – the potential configuration of even a small number of bricks is huge. People might buy a Lego toy to make a car or house but will quickly adapt it and reassemble the bricks in all sorts of different – and user created – ways. But since 2000 Lego has been on a journey which puts this user- linked approach increasingly at the centre of their strategy.

Early work behind the scenes in improving production efficiency involved building digital models of all the bricks and other components which they made. By having such models it became possible to explore new product options via computer- aided design and to link this to computer-aided manufacturing, helping reduce overall time and cost in manufacturing. But this also opened up an interesting product option in the market- place – customizable toys. An early product was called Lego

Mosaic, originally launched in 2000, which allowed users to upload photographs to the company's website. Lego would digitize the picture and calculate the bricks required to make a

wall-hanging mosaic with multiple colours.

Mosaic provided an early learning experience which has fed through to an increasing variety of user configurable products in which users can modify or even design from scratch their own toys.

Lego Factory was one of the first to offer this opportunity online – users submitted designs and Lego calculated the bricks and other components required and generate the building instructions needed. Alternatively users could use design tools on the site to develop their own ideas and Lego acted as a service provider, packaging the relevant pieces and sending them out to the user/designer.

As the following press release indicates, the role of users was becoming a key element in Lego's innovation strategy:

“August 29, 2005: Celebrating the 50th anniversary of its System of Play, LEGO Group today unveils LEGO Factory, a consumer experience that combines today's hottest kids trends — technology, mass customization and community — to enhance and build relevance for its classic toy offering. Beginning today, children of all ages can visit www.LEGOFactory.com to design, share and purchase custom models.

LEGO Factory is powered by LEGO Digital Designer (LDD) — a proprietary virtual building program available as a free download for PC and MAC users. Drawing upon a virtual warehouse of bricks and elements, children can design 3-D models just like professional LEGO Model Designers. Factory models are micro scale — smaller than traditional LEGO minifigure proportion (roughly 1:50 life-size) found at retail — but still provide precise detail and functionality.

LEGO Factory sets arrive in custom packaging that shows a child's model and name, and include all of the LEGO elements needed to build the virtual design in physical form. Every customized LEGO Factory creation will have a unique price dictated by the size of the model and elements used. Custom models will take from 48 hours to a week to arrive, depending on which shipment method consumers choose.

LEGO Factory is also designed to create a community of builders who share their virtual creations with consumers around the world. Children can view other builders' custom creations, add and remove bricks, rotate the 3D view and zoom in on the details, download the building instructions to build from their existing LEGO collection, or even purchase someone else's model for themselves.

“Giving children access to a virtual warehouse of LEGO elements to design their own models is a fantastic extension of everything the LEGO System of Play represents and has provided for the last half

century, and marks a rare opportunity for true mass customization and community in today's toy market." says Mark Hansen, director, LEGO Interactive Experiences. "With LEGO Factory we can expand beyond our 100 in-house product designers to marvel at the creativity of more than 300,000 designers worldwide."

During its Beta phase, LEGO Group sponsored a contest to better understand the types of models that consumers would design using LDD. The contest lasted for 11 weeks and 8,000 models were custom designed. Ten models were voted by consumers and LEGO Master Model Builders to become real LEGO sets available exclusively through the company's Shop-at-Home division. Contest winners, whose ages ranged from 9 to 38, received royalties based on sales of their winning designs.

"It's only fitting as we celebrate 50 years of a classic play pattern in an increasingly electronic toy world that we elevate the experience of building what you imagine by blending the best of both the virtual and physical worlds of play," says Soren Torp Laursen, president, LEGO Systems. "We look deep into our compatible system of play to reinvent ourselves year on year, and we only incorporate technology where meaningful and complimentary to the core LEGO building experience."

This experience was reflected across other communities. For example, Lego had been producing train sets since the 1960s but had come to a decision to axe this model as part of their rationalization plans in 2004. The response from the community was strong and highlighted to Lego that there was an important community of users – hobbyists – who had not only bought the original trains but then created their own designs and modifications. In a similar process to that with Mindstorms (see below) Lego began to identify key users and designers and encouraged them to contribute their design ideas. The result was that a group of 20 'lead users' created 76 new product designs which Lego were able to produce and sell.

New approaches (2) Open innovation

A second important feature in this learning process was the opening up of the design process to outsiders. An early product aimed at competing with the growing computer games sector was Mindstorms – a sophisticated Technic-based kit with a programmable brick, various sensors and actuators and a simple user programming language. This allowed users to create a variety of programmable models which would carry out various movements – developing ideas which the company had first explored in the 1990s. The original Mindstorms Robotic Invention System (RIS) product was launched in 1998 and became one of the company's best selling lines – with over 1 million units sold. In 2004 work began on Mindstorms NXT – as the name implies, a new generation – which appeared in 2006.

One of the key limitations of the original Mindstorms was the complexity of the programming language – market research suggested that over 70% of users were in fact adults. So a key element in the design specification for NXT was a simpler programming language. Lego – again using an open innovation approach – commissioned a Texas software firm, National Instruments, to help with this. Users can now use a simple programming language and deploy a wide range of sensors and actuators and link to their PCs or mobile phones – resulting in an impressive range of user-designed sophisticated automated products. (See, for example, a working miniature car factory – YouTube video – <http://uk.youtube.com/watch?v=GQ3AcPEPbH0>).

Significantly Lego discovered early in the life of Mindstorms that a growing number of users were ‘hacking’ the software and developing applications and extensions to the original code which Lego’s team at Billund had produced. Rather than try and control or restrict this activity Lego adopted an ‘open innovation’ approach, recognizing that ‘not all the smart guys work for us’. They also recognized that limiting creativity was contrary to its mission of encouraging exploration and ingenuity. As Vice President Mads Nipper commented, “We came to understand that this is a great way to make the product more exciting It’s a totally different business paradigm – although they don’t get paid for it, they enhance the experience you can have with the basic Mindstorms set.” By identifying key developers and then engaging their interest – for example by making available source code, running competitions, even putting a “right to hack” into the Mindstorms software license, – Lego were able to gain considerable leverage on the original design. A growing user community began setting up websites, over 40 ‘recipe’ books were produced and all sorts of hardware and software add-ons were developed.

When it came to developing NXT Lego set up a Mindstorms User Panel, recruiting key developers in secrecy to work with them from the earliest stages. From 20 of the ‘top’ external developers Lego eventually identified four key players who formed the MUP. An important aspect of such involvement – typical of ‘lead user behaviour – is that it is not driven by financial reward but rather from intrinsic interest and involvement. For their participation, MUP members received some Lego sets and Mindstorms NXT prototypes; they even paid their own airfares to Denmark! As one of the team commented, ‘They’re going to talk to us about Legos, and they’re going to pay us with Legos?..... They actually want our opinion?’ It doesn’t get much better than that.”

As a consequence of this successful experience Lego announced that they were seeking 100 ‘citizen developers’ to work with them on the NXT project and beyond. (Koerner 2006)



LEGO Universe – the moonshot which crashed to earth

The process of identifying and working with an increasingly wide range of users and communities transformed part of Lego's business. It still made bricks and toys designed and sold in the 'traditional' fashion. But in parallel a new business had grown which engaged users at the front end of innovation, designing and co-creating their own products. Importantly designs by one user might be attractive to others and so it was not simply a version of 'vanity publishing' but an interesting extension of design and marketing into the open source world. In adopting an open approach Lego managed to bring users into its world – rather than have a growing body of users designing and exchanging ideas outside – for example there was a vibrant independent Lego User Network called LUGNET.

The next development tried to bring several of these strands together. LEGO Universe was designed as a Massively Multiplayer Online Game (MMOG) like 'World of Warcraft' and others. But the difference was that the characters and creatures in LEGO Universe were digital models created by the children who played in the game. Since – through projects like LEGO Factory – LEGO knew how to create custom toys to user designs it was possible to have not only your own digital character playing in a virtual game but also to have its physical representation to play with in the physical world. In this process LEGO united its storytelling tradition with its brick-making and platform advantages, allowing the creativity and imagination of its users to shape the real and virtual elements in the game. (See www.lego.com for more details).

It was launched in 2010 and proved popular amongst its fan base but was quietly and suddenly withdrawn after 2 years of operation.



The growth accelerator

There could hardly be a more fitting metaphor for Lego's development into the Twenty-first century than its position on board the space shuttle Endeavour in the first year of the second decade of the new millennium. As NASA described it:

'The LEGO® Bricks payload is a series of toy LEGO kits that are assembled on orbit and used to demonstrate scientific concepts'...''

Video of crewmembers playing, "er," working with the bricks in space, along with corresponding classroom activities, can be accessed at [Lego Space](#)'.

Ole Kirk Christiansen's idea of 'play well' seemed to have stood the test of time. Certainly, the Bricks in Space programme demonstrated a pretty profound commitment to the concept of valuable play. Some things, it seems, don't change.

But there are many things that do. This part of the case study focuses on the manifold aspects of Lego that saw dramatic and necessary change as it entered into the shifting territories of the Twenty-first Century.

Understanding the User – How Cultural Anthropology helped Lego 'get' its Market

As we've seen, Jorgen Vig Knudstorp's appointment as CEO of The Lego Group in 2004 brought with it a veritable smorgasbord of change. There were urgent decisions to be made; reported company losses were vast – \$1 million a day according to Lego's own financial records. Knudstorp's response was swift, outsourcing theme parks and restructuring the supply chain. Significantly, he prompted a process of comprehensive investigation into Lego's end users.

Assumptions were confronted. Particularly, that the incentive for young boys to play computer games (itself a huge threat to

Lego's core market segment) was anything to do with short term attention spans and instant gratification. Rather, the study found that gaming offered young boys the chance to display mastery, through scoring, ranking and levels, that they were able to share with their peers. Product designs that might previously have been considered too time-intensive to appeal to that particular market were placed at the centre of Lego's strategy. Clearly, there were great rewards to be reaped from this kind of intensive consumer research. And so in 2007 Lego repeated the trick, this time focusing on that peculiarly awkward toy demographic, little girls.



Getting the girls into the game...

It is worth noting the significance with which the Lego group viewed their position with this particular market segment- four years went into the research that eventually resulted in the launch of Lego Friends, a product line designed specifically for girls. For the Lego group, asking the question, 'what does a girl want?', was less Freudian philosophising, more economic necessity. According to Mads Nipper, executive vice president of Lego marketing, in 2012 'of the current active LEGO households in the U.S., only 9% of them report that the primary user of the product in that household is a girl'. One way or another, when it came to little girls, Lego was getting it wrong.

And in the process, cutting themselves out of the market for the other 50 percent of the world's children.

So, where did four years get them? The Lego 'Anthro's' as they became known, found that little girls had no problem with construction play, they just wanted different things from it than boys. Rather than

mastery, girls tended to prefer the storytelling and role play aspects of the process. Rather than playing in the third person, as boys tended to, girls would put themselves in the play – a difficult process when their avatar was a 4 centimetre plastic man. Finally, and perhaps most controversially, girls felt a real need for beauty in their toys.

Lego Friends was the proffered solution. Centred around a new mini-figure, built to the same proportions as the original, but taller, curvier and with a more realistic aesthetic. Each of the mini figures comes with a name and back story, to allow girls a template on which to tell stories. Six new colours were introduced into these sets – two blues, two purples, and two greens – ‘based on global research that indicated a wish for a bolder, more vibrant colour palette to create the most interesting models’. The character’s inhabit a fictional hometown, ‘Heartlake City’, and there are various locations within which to play out scenarios, such as a salon, a horse academy, a veterinary clinic, and a café.

Lego Friends has been a financial success for the Lego group, according to a Lego press release, the group sold twice as many LEGO Friends sets as expected during the first six months of 2012, a financial half in which their net sales increased by 24% compared to the same period in 2011. In economic terms, the resource heavy R&D process was a viable course. But the product line has received a mixed reception amongst the public. Opinions vary, and whilst an ‘abomination’ (as one journalist described it) may be an overstatement, there are certain aspects of the product line that raise questions amongst some potential consumers. In particular the change in attitudes towards toys aimed at girls suggests a wider range of possibilities than the narratives suggested by Lego Friends which are surprisingly limited. The locations for scenarios exclude anything resembling a hospital, factory, or university; leaving little manoeuvring space for girls intending to role play as a teacher, doctor or engineer.

A ‘System of Play’ – Interlocking with Popular Culture

When Gotdfred Kirk Christiansen took over as junior managing director of Lego in 1954, what he emphasized was that Lego was not simply a toy, rather, it is a ‘system of play’. Bricks from 1958 can apparently still connect to bricks made today. Scenarios can be played within the narratives displayed on the packaging, or they can be additions to extensive storylines created with other sets. Ultimately, each Lego interlocks with every other. An architectural innovation in 1954, this fact also represents Lego’s seamless ability to interlock with different media of play.

Just as a new addition to the Oxford English Dictionary invariably signals the acceptance of that word’s meaning into popular culture, the inclusion of a particular circumstance or product into Matt Groening and James L. Brooks’ animated sitcom ‘The Simpsons’ has acted as a reliable marker of cultural significance for at least the decade since the programme itself could be found in the OED. In May 2016 Lego was given the Simpsons treatment, taking its place next to Apple Inc., Edgar Allen Poe and hydraulic fracturing, amongst others. ‘Brick Like Me’ featured explicit references not only to actual

product lines, such as Lego Pirates and Lego Ninjago, but also to the potential of unlimited options suggested by Lego's system of play. After destroying Springfield Elementary School, Bart is forced to rebuild it, and does so to his own, far-reaching specifications. The rebuild comes fitted with skate park, terminator gym teachers and a haunted forest. When Bart is confronted about his refusal to build the original school, he coolly replies, 'relax, I used all the same bricks'. In this statement 'Brick Like Me's' writer Brian Kelley displays the cultural consciousness we have of Lego as a system of play of profound capabilities. There are no rules.

This is a concept explored in depth in the extension of the Lego franchise, 'The Lego Movie'. Spoiler alert; it's about creativity versus constraint, and features an every[Lego]man raging against the machine. Really, it's Sophoclean in proportion. Once again, The Lego Movie plays on the position Lego holds in our society as a toy with unlimited creative potential. Manifestly, this is a perception that The Lego Group must be eager to reinforce. Marketing doesn't get much more powerful; to many, Lego is less a toy than it is a value.

That Lego is culturally recognizable for its creative potential is not only significant to marketing executives, it also creates opportunity for educators. Various teaching resources describe Lego's effectiveness in developing understanding. As Heather T. Gould describes, 'children often become more receptive to an activity if they feel they are connected to it by some non-academic means. They know and love playing with LEGO bricks. Second, because children love the bricks and often play with them at home, a teacher can incorporate the children's intuition regarding the use of the toys. With little effort on the teacher's part, this intuition can be developed into mathematical knowledge.'

Children respond to Lego because they know it. Lego is so interlocked with popular culture that this position in itself creates value. Lego perpetuates the need for Lego.



Old Toys, New Media

Perhaps the boldest territory encountered by Lego in the brave new world of the twenty first century is that of new media. In a 2005 press release the Lego Group described the 'hottest kids trends' as 'technology, mass customization and community'. This was a year after Facebook was founded. In the

decade that has followed children have demonstrated an acute aptitude for technology. As Beth Bos, Lucy Wilder, Marcelina Cook and Ryan O'Donnell describe, 'students are naturally inquisitive and explore without fear of failure when using technology'. In many senses, merely by dint of their adulthood, product designers are on the back foot when creating for this market. Regardless, the Lego Group has been consistently creating with these factors in mind.

Lego Factory, the basis for the aforementioned press release, ran for 7 years before it was closed in 2012, because it 'struggled to live up to quality standards'. Lego Factory, which later became Lego Design byMe, allowed customers to design their own Lego concept online, before having it actualised and sent to them. As the current Lego Design byMe website states, 'This is not the end of customization for the LEGO Group, but a revision', Lego Factory was merely one of the many new media offerings Lego would create.

Lego Cusoo, a website started in 2008 by the Lego Group and the Japanese crowd funding company Cusoo, was the next generation of Lego Factory/Design byMe. Combining 'technology, mass customization and community', Lego Cusoo, later Lego Ideas, allows the customer to design and upload a potential Lego set. The design can be viewed by other members of the ideas community, and voted on. Once any design reaches 10,000 supporters, it will be reviewed by the Lego ideas team, before potentially being sent into production. The original designer is recognized as the product creator, and receives 1% of the total net sales of the product. Lego Ideas utilizes user involvement in the same way Lego had done with hackers when developing Mindstorms. This kind of productive exploitation of the organic communities that surround Lego has formed a crucial part of their business as they have progressed into the twenty-first century. It is the particular communities formed through new media however, that have been less predictable and more susceptible to failure. Rather than allow this to quash their efforts, Lego has responded to this difficult terrain by repeatedly creating, analysing their progress, and developing in new directions. Lego Factory had made way for Design byMe had made way for Lego Cusoo had made way for Lego Ideas.

As we saw, in 2010 Lego Universe was launched, a Massive Multiplayer Online Game (MMOG) whereby users could create an avatar with which to play online. The game operated on a subscriber basis, much like World of Warcraft. Lego Universe struggled to garner the level of subscriptions necessary to make it a viable output. Demonstrating an ability to fail and quickly move on has allowed the Lego group to develop into different directions of new media with relative ease. In their response to the shutting down of Lego Universe they stated, 'the sets that you can buy in stores and build on the floor at home will always be at the core of what Lego creative play is all about, but we have not given up on trying to find ways to replicate that same "systematic creativity" of the LEGO System of play in the digital world.' My Lego Network, a children's social networking site designed especially for Lego fans and launched prior to Lego Universe in 2008 has, conversely, continued to be successful. Allowing users to network

through a gaming narrative, My Lego Network acts as stepping stone for younger internet users to progress.



Building a Future

One of the most surprising Lego Ideas collaborations has been with Swedish company Mojang, creators of the independent video game, Minecraft. It would be difficult to continue our exploration of Lego's position in the twenty first century without spending some time discussing Minecraft.

Published in 2009, Minecraft is a sandbox video game that allows users to build without limits. It has been extraordinarily popular (signalled, if nothing else, by its acquisition by Microsoft in November of this year). By 2011 Minecraft had achieved 1 million purchases, whilst at that time having no publisher backing or commercial advertising. The gaming and social media communities that had proved so unpredictable for the Lego group welcomed Minecraft with open arms. Social media such as YouTube, Reddit, and Facebook played a huge part in garnering Minecraft's popularity. In 2001 Alex Leavitt, a Ph.D. student at the Annenberg School of Communication conducted a survey that showed one third of participants had learnt about the game from watching online videos. Minecraft's ability to show mastery is heightened through its connection to YouTube and other social media. At its core, Minecraft is digital Lego; 'a game about breaking and placing blocks'. And so it might seem that Minecraft would signal the end of Lego, succeeding in areas where Lego had struggled. But when in 2011 Mojang submitted a Minecraft design to Lego Ideas, Lego responded with an open innovation attitude. The design received the mandatory 10,000 signatures in a matter of days and, post- review, the first set was released in 2012. Lego and Minecraft have continued the collaboration. By responding to Minecraft with enthusiasm, rather than pessimism, Lego has transformed a dangerous competitor into a valuable component in their system of play.



2020 update – still playing after all these years

As we have seen from the above studies, following a period of significant financial instability at the beginning of the 21st century, Lego have been able to transition to a once-again thriving brand, (in 2015, [Lego overtook Ferrari](#) as the world's most powerful brand, and in 2019 [a study from Russia's Higher School of Economics](#) found that Lego sets were a better investment than gold). This success is a testament to the degree with which Lego has committed to innovation, learning, and new approaches in a great deal of its business. These achievements have not been unmitigated however, and in 2018 Lego announced [job losses](#) as revenue and profit fell for the first time in a decade. This suggests that despite the efforts made, even a company as seasoned as Lego is susceptible to the burdens of operating in a rapidly changing market, at a time at which the concerns and wants of their users are constantly evolving. This study will investigate the means by which Lego has achieved its most recent successes, and look further at progress being made as a response to an ever- more saturated market and increasing pressure on brands to exert sustainable and socially responsible practices.

A Focus on Users

The substantial research that Lego put into the production of 'Lego Friends' (its product line marketed towards girls) yielded significant results, and has played a major part in Lego's placing an increasing amount of value on their own intellectual property (rather than licensing agreements). According to Jørgen Vig Knudstorp (Lego CEO 2004-2016), in 2015 Lego's own intellectual property accounted for about 2/3 rds of its business. This is dependent on extensive and thorough study into the wants and requirements of Lego users, something that drives the focus of 'The Future Lab', (the name Lego gives to its R&D team). As Knudstorp [describes](#), 'There's this famous quote that if you want to understand how animals live, you don't go to the zoo, you go to the jungle'. Through the work undertaken by The Future Lab, Lego continues to create future product designs based upon insights gained from this user-driven approach.

A major part of The Future Lab’s approach is a focus on experimentation. Indeed, the creation of The Future Lab was in many senses a means of providing a space where mistakes can be made inexpensively. Within this bubble, Lego operates what [Knudstorp describes](#) as ‘a real design-thinking approach to innovation’ (a further explanation of Design Thinking can be found [here](#)). By ideating, creating, testing and learning from ideas within this private space, Lego allows for creativity while avoiding costly disappointments. Much of the recent experimentation has been into what Lego has titled ‘One Reality’ projects. Based upon one particularly noteworthy understanding gained from The Future Lab’s research – that many children are placing decreasing importance on the separation between digital and physical play – ‘One Reality’ focuses on projects that merge the classic Lego bricks with various tech software (examples include the Nindroid MechDragon, Lego Fusion, and Portal Racers).

While the majority of the results of these experiments never leave The Future Lab (apparently 90% of projects are never launched), there is a general consensus that it is only by creating in this way that Lego are able to maintain their prominent position in an increasingly competitive market. As David Gram (The Future Lab’s head of marketing and business development) [describes](#), experimentation ‘is something we can’t afford not to do’.



New Perspectives

Among the factors that have supported Lego’s recent general success is a willingness to explore new approaches. Rather than a ‘the way we do things round here’ mindset, over the last two decades Lego have exhibited an openness to different perspectives. One of the major growth areas for Lego has been ‘AFOLs’ (Adult Fans of Lego). Prior to the 2000’s this market was almost entirely incidental. As Gram puts it ‘doing anything that wasn’t for the target group, which was boys between, say, 5 and 11, used to be almost a complete no-no’. So, when Lego executive Paal Smith-Meyer collaborated with Chicago architect Adam Reed Tucker in 2007, on a line of Lego architecture sets for adults, their project was a

small, experimental offshoot. This product line proved markedly successful. On top of which, Lego were able to charge significantly more for the sets than they did for the children's equivalents. This success story reinforced the benefit of operating an open-minded culture when it came to alternative ideas.

More recently, [Lego has partnered with Nintendo](#) to create a Lego replica of Nintendo's first home console (including a TV displaying 'Super Mario', a controller, and a game cartridge which fits inside the console). Once built, the user can then turn a crank on the side of the console to move the Mario figure across the screen. Capitalising on the nostalgia of millennials, [Lego positions the product](#) as an opportunity to 'recapture childhood magic'.

As is demonstrated by the recent Lego Nintendo launch, examples of Lego's willingness to consider alternative perspectives can be seen in their openness to partnerships and collaboration. One of the most impactful of which is [IKO](#), a prosthetic limb system for children which is compatible with Lego Mindstorms. This interchangeable system allows users to 'hack' their prosthetic, substituting different compatible parts dependent on play or functionality. Designed by former Lego Future Lab research intern, Carlos Arturo Torres, IKO takes the concept of 'playing well' (the original meaning of the name 'Lego'), to the next level. As Torres [describes](#):

There were many problems I was trying to understand. The negative perception that kids have of prosthetics; the focus that companies put on engineering and not on the human part of a child; the social isolation felt by kids because of their condition and how hard it can be for them to build strong self-esteem. My idea was not to make a traditional prosthetic, but to propose a system that was flexible enough for kids to use, hack and create by themselves and with their friends.

The integration of Lego into the IKO system incorporates the sense of autonomy, mastery and relatedness that Lego play reinforces in children, and extends it to children for whom those values are most in need. Lego is already ubiquitous in many places of education, the IKO prosthetic system suggests the extent to which its reach may advance into the future. A video demonstrating IKO can be viewed [here](#).



Sustainability and Social Responsibility

As Lego has seen the benefit of operating a user-led, open innovation culture, so too has it begun to respond to the changing attitudes of many of its users with regard to sustainability and social responsibility. As [a recent survey](#) (cited in [this study](#) on social enterprise, LuminAID), demonstrates, ‘as many as 87% of US consumers will buy a product because a company acted on an issue that they felt strongly about’. With this context in mind, it is essential that companies of any size take into consideration their actions in terms of sustainability and social responsibility, and how those actions are perceived. For Lego, this is a challenge of particular magnitude, as [this recent article](#) in The New York Times puts it succinctly, for Lego, ‘plastics are not the packaging, they are the product’.

Lego has committed to reducing the amount of plastic pollution they produce. Initially, they are phasing out the plastic elements of their packaging. More complicated is the issue of the bricks themselves. Tim Brooks, Lego’s Vice President for Environmental Responsibility, accepts the scale of the challenge, [acknowledging](#) that finding an alternative to petroleum-based plastic could take years. In response, Lego are investing roughly 1 billion kroner and hiring around 100 people, in order to meet a commitment for all the plastics in their toys to come from either recycled, or plant-based sources by 2030. For Brooks, the issue is more than a marketing one, ‘it is important that we can make a toy that doesn’t jeopardize children’s future’. As a brand that has fostered a great deal of trust from parents and educators alike, this sensitivity to the concerns of a changing environmental culture is integral to their continued success.

In June 2020, Lego [announced](#) the launch of their ‘Explore the World’ sets, a collaboration with National Geographic. Further demonstrating their cognizance of the importance of environmental issues to their customer base, Lego suggests that these sets are even designed to foster the kind of creative problem-solving that is going to be required to tackle the coming environmental challenges. Ellen Catherine Lucy Bowley, LEGO Friends designer, states ‘caring for our planet is

becoming ever more relevant to kids around the world. They are more committed to seeing positive environmental change than any previous generation, and their creativity will play a key role in finding solutions that will help better protect our wildlife’. Alongside the product launch Lego has also announced a contribution to the National Geographic Society to fund grants in ocean exploration and species conservation.

Conclusion

In this study we have seen that despite the general successes made over the past two decades in terms of re-establishing growth and financial security, Lego continues to operate in a market in which the wants and concerns of their users are continuously evolving. As such, they are required to reinforce an

ethos of continual innovation. Through careful consideration of users, an openness to considering new perspectives, and a willingness to respond to shifts in perceptions connected to sustainability and social responsibility, Lego has been able to continue to strengthen their value as a brand. As they negotiate the changing landscape of the 2020's, it is this careful management of company- wide culture that will reinforce their sustained success.

Questions for Discussion

Make a short list of other companies operating in the toy market (Mattel, for example). Choose one from the list, and create a short presentation on the ways in which their growth over the last twenty years has followed a similar or different trajectory to Lego. What factors might have contributed to this?

Choosing either the same company, or another from the list, consider the ways in which environmental responsibility has played a greater (or lesser) influence on strategy.

Read Chapter 13, '[Design Thinking](#)', from Creativity for Innovation Management. What other products designed for children can you think of that have incorporated this methodology into their production. What were the advantages (or disadvantages) of this approach?