



'Design culture' is a rarely used term at Nokia. That's because design simply is our culture and has been for as long as we can remember. When we do reflect on our design identity, it's impossible to ignore our Finnish-ness. It has always coloured our approach. We speak of our communication devices and experiences as pure, human and built better, and the origin of these qualities is a set of values that maintain an honest approach to materials and processes. We make technology a human concern and we're dedicated to craft and attention to detail.

These values and design motivations have their roots in Finland and in Finnish culture, but are expressed by an international team of designers and engineers working in studios across the world. These designers create the hardware, software and packaging for products that sell in the hundreds of millions every year. On the following pages, a few key Nokia designers discuss a little more about what they do, and how and why they do it.

PRODUCT OF FINLAND NOKIA

THIS IS WHAT WE DO

Nokia Design is deeply involved in the physical making of phones and tablets, of course, but its work doesn't stop there. Its team of designers spend their days imagining how to make the experience of getting from here to there easier with HERE Maps; wondering what is the best way to keep our 'heads up'; and defining when, exactly, the curve on a phone is just round enough to make it pleasurable to hold.



A seemingly obvious question, perhaps, but what does Nokia make?

Stefan: We build absolutely fantastic communication devices. And we create absolutely fantastic communication experiences. The notion of communication has changed quite significantly over the short history of Nokia's involvement in the industry.¹ You could argue that the way people communicate these days reflects social change. So, in a way, that is the business we are in.

How does being Finnish affect the character of the brand, in broad terms?

Rhys: Nokia is uniquely and powerfully Finnish. Beliefs and values such as authenticity, respect and democracy are at the core of the company. It's a symbol of modern Finland and of European high-tech. Our values and culture make Nokia a great platform for positive impact.

Axel: The culture of the company is very Finnish: it is open, horizontal, maybe sometimes too much so. There is a way of relating to your colleagues that you don't find in many other companies. Such as discussing things in the sauna or rolling in the snow. If employees aren't Finnish they are a little shocked.

Stefan: There is a certain pragmatic streak to the Finns, pragmatic in the best sense. There is also a mindset that wants to do good for society: that's commonplace. Finland has a very democratic, open-minded culture and this impacts our work in all kinds of ways.

And how does that impact on what you do at Nokia? How do those kind of values affect the way you work?

Stefan: We listen to employees and they feel respected. They voice their opinion freely without worrying about the impact. Pragmatism affects how we design too and the judgments we make. Humility and perseverance are common Finnish characteristics and they are certainly part of Nokia's character too.

Nikki: If you look at Finnish culture and design, there is a purity to it and a clarity, a taking away of the unnecessary to get to the core of a design. That is key to the industrial design of the Nokia devices we make and the user experience too.

Peter S: And there is one value that is fundamentally Finnish: integrity. There is a refusal to engage in behaviour that evades responsibility; a point where empathy meets accountability.

What shifts has the brand gone through over the years?

Nikki: Nokia is a company that has always been open to change. It was a paper mill originally, then it made tyres and rubber boots, then TVs² and then mobile phones. Which is why now is so interesting: the company is again going through one of its biggest evolutions.

Where does design sit within Nokia?

Stefan: I think design has always been very much at the heart of the company. Or let's say design-like thinking and design-like attitudes have always been at the heart of the company. Nokia was the first company to treat mobile phones as pure consumer devices. I think that is a very design-minded approach, to democratise technology.

Peter G: If you look back to the time when the technical challenges of making phones were so big, all the devices were like instruments. They were pieces of raw technology, but nobody really cared about that because it was so amazing that you could carry a phone around with you. What Nokia did was to turn that technology into a design: a human device in terms of form and colour, but also in the simplicity of the user interface.

Nokia was the first to see this product as more than just technology; to see it as a personal object that people would want to own. I think that's an interesting point of origin for the objects being produced today.

What is the design studio culture like?

Peter G: The design studio is pretty diverse. A lot of people studied industrial design, but there are others, like me, who may have studied furniture design or have other backgrounds. There are people from the automotive industry and some more craft-based backgrounds. It's a very wide range of skills. And there is a massive range of nationalities.³

Stefan: There is room for individuals, but I think there's also a lot of room for teamwork and for working across different disciplines. I don't think many people in this organisation, if any at all, are interested in creating design for the museum. I think they're interested in creating designs that end up in the hands of people. There's an incredible commitment to detail and to doing the hard stuff; the un-glorious stuff that in the end is really important.

What is the hard stuff; the un-glorious stuff?

Stefan: The nasty little details that are quite technical or the discussions around the bill of materials. Nokia designers feel very responsible for their contribution.

Our interviewees

Axel Meyer
Nikki Barton
Peter Griffith
Peter Skillman
Rhys Newman
Stefan Pannenbecker

¹ Nokia was founded as a pulp mill in 1865 in the town of Nokia in southern Finland. In 1982, it introduced the first car phone, the Mobira Senator. It made its first digital handheld GSM phone, the Nokia 1011, in 1992.

² The full spectrum of products made by Nokia since 1865 includes paper, tyres, rubber boots, cables, personal computers, robotics, gas masks, consumer electronics, mobile phones and, believe it or not, a few other things too.

³ As of 2013 people from 32 nationalities are employed in Nokia's design studio.



Left
Research, experimentation and testing play a huge part in the studio culture of Nokia Design. Here, colour variants for a new model are examined.

Below
The Nokia Asha 210 is a phone that expresses the results of a lengthy research and development process.

Following page
The Lumia family includes smart devices such as phones, tablets and hybrids like the Nokia Lumia 1520.

Nokia was the first company to treat mobile phones as pure consumer devices. I think that is a very design-minded approach; to democratise technology.

STEFAN PANNENBECKER





HUMAN DESIGN

Human Design is something of a Nokia mantra. It reflects the belief that technology and human nature need not be contrary or conflicting, that technology can do much to help us be more human. That belief informs the way Nokia devices are conceived of, evolved and made. Applying human values to technology leads to the development of intuitive and emotive systems; to labouring over craft-like details; or to creating tools that simply make their users' everyday lives a little better.



What is the relationship between technology and human nature, as seen at Nokia?

Axel: Every designer's challenge is to create a human way of interacting with the artificial environment around us. Technology is the Arts and Crafts of today's world. Where once you had a blacksmith and a carpenter creating everyday objects, now you have a couple of us trying to translate all of these innovations into something that has some meaning.

Stefan: Yes exactly, we're making technology more human. There are a couple of aspects to that. First, there is the shock of the new: a designer's job is to overcome that and to make things relevant and more meaningful. What that means for me is not just making things usable; it is about the pleasure of use. It is about putting so much love into a product that you believe it will be the last product of that kind that a person will ever want to buy. And I think that is our goal. Some people might think that is a very un-commercial way to think.

It's a romantic thought...

Stefan: Absolutely. But there is no reason to put anything out into the world if you don't believe somebody will really love it. It should be painful to let go of the product, to get the new one. It should feel like, 'Man, you know, I really love this thing!' One example of how we approach that is with our use of colour. People love their yellow phone because it is such a strong statement. People don't acquire a yellow phone by accident.

Communications are a massive part of our everyday lives. What are the areas that Nokia is especially concerned with?

Rhys: Products are getting bigger, displays have a higher resolution, and we can do more and more on them. If you look around in public places; in restaurants and at people walking down the street, they are walking with their heads down, poking and swiping at the devices we built. This is because they are designed to maximise our attention. Dealing with the consequences of that led us to a great brief: How do we design our products in a way that doesn't compromise connectivity, usability, functionality and beauty, but to be calmer, quieter and less intrusive? Essentially, how do we find ways to bring people's heads up again?

Nikki: Yeah, one great example of this is the Glance screen.¹ With the Glance screen, I don't need to switch my phone on to check the time or to see missed calls. It eliminates an everyday task, and is an example of how we are always looking to improve communication between people.

This was surprisingly complex but it works beautifully in our latest range of Lumias. It's interesting how something so simple completely changes the way you interact with your phone.

How do you see the human need to connect evolving over the coming years?

Peter S: Knowing where you are and where you're going are fundamental human needs, so location becomes increasingly important. With our HERE Maps², we provide beautifully relevant answers, visual answers, to everyday questions. This is all about exploring and understanding the world around you and encouraging you to go out, be

mobile and enjoy a richer life. We can help you see what is inside a building, find out what time your bus is due or where to eat tonight. But our biggest interest is in how you experience and contextualise this information.

Stefan: The phone is the physical result of the technical capabilities that we have. But if those capabilities change then a phone may be obsolete.

Interactions that dissolve into behaviour are something we're working on. Swiping is a very conscious act. And you could argue that ultimately we should overcome that. Some of our accessories³ allow the functions of the phone to exist away from the actual device. And I think that is another idea of how communication being integrated into the environment around us will become more interesting in the future.

Peter S: Exactly, what matters is that the experience you are having transfers seamlessly between increasing numbers of connected devices.

Tell me about where the physical and digital worlds meet and why this is an important consideration.

Peter G: I think this is a very key area. We have an industrial design team working on the physical objects and right next to them the digital design team is working on the user interface.

There are a few areas where the two cross. One example is when we match colour between the displays and the phones. Nokia has a portfolio that runs from €15 to €600s⁴, but we go to great lengths to be consistent on all models. At the early stage of a product we'll get hold of the LCD display, wire it up on a breadboard⁵ and render colour on it. Then the people that are working on the polycarbonate shell will be able to compare plastic samples with an accurate LCD colour rendering. Sometimes it's easier to adjust the properties of the display screen; sometimes you need to adjust the mix of the resin colour. It seems so basic from the outside but to do it really well involves in-depth work.

3. Nokia's accessories collection includes headsets, speakers and wireless charging equipment.

1. The Glance screen is a low-power mode feature and is available on all Lumia models.

2. HERE Maps is a comprehensive index of information that is gathered, monthly, by 20 billion probes.

4. Nokia's most affordable phone is the Nokia 105 at €15 and the most expensive is the Nokia Lumia 1020 at €600.

5. A breadboard is a working model that designers use in early stages of prototyping.

Stefan: We believe that the world is noisy enough and these objects should be visually simple and unobtrusive. The moment you turn a phone on, the actual object itself should move into the background. This should be a beautiful object when it's on the table and when you hold it in your hand. But nobody looks at a TV once the TV is on. They look at what happens on the screen. That's the same for the objects that we create. We need to make sure that nothing distracts from what happens on our product's screen when you are using it.

We encourage that by creating an almost seamless design. Because of the way the glass is curved, when you swipe it is a really pleasant experience. That is just one area where the digital and physical reinforce each other.

Axel: Humanness has a lot to do with interaction and the way we relate to objects, industrial design is most successful when it makes the experience the important thing and doesn't try to be to the centre of attention.

Human Design can also refer to the significance of the human in the design process. Is that a consideration at Nokia?

Stefan: You could look at phone design as being straightforward: just create a box, stuff all the technology in there and be as space efficient as possible and make it as cheap as possible. And that would be rational. But we are irrational sometimes. We sculpt these phones to be soft, to sit gently in the hand, and we include details like a slightly curved glass which makes the product a little bit more expensive. It is an irrational thing to do, but it results in a craft-like quality. When you look at a Nokia product, you don't think that it comes from an assembly line. It looks and feels like a more natural, more poetic process of product creation was involved here.

So Human Design, in Nokia terms, can also refer to the explicitness of the human hand in the product's making?

Stefan: Yes. And then of course human design also means that, when we paint our products, which we do less and less, we use water-based colours, or that the internal components are made in such a way that they have as low an impact as possible on the environment. Nokia is one of the greenest companies.

Right above
The Glance screen, shown here on the Nokia Asha 501, allows users to access basic information, such as the time, without having to switch on their device.

Right below
Lower-range mobile phones, such as the Nokia 105, 301, 206 and Nokia Asha 210, make use of the innovative production techniques first developed for higher-price devices. It shows Nokia's desire to democratise technology.





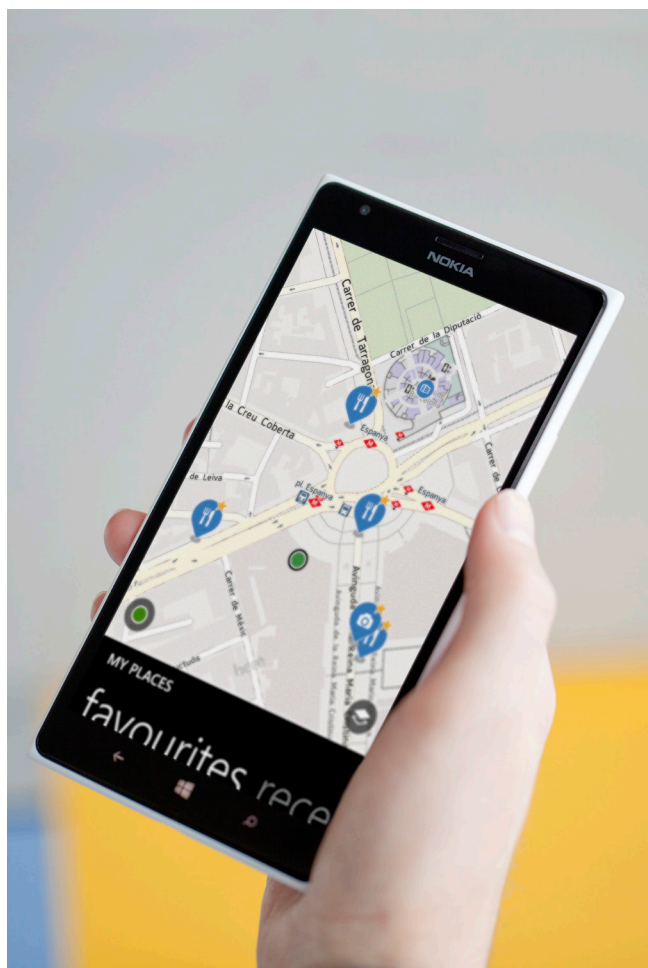
We provide beautifully relevant answers, visual answers, to everyday questions.

PETER SKILLMAN



Above
Nokia Designers put the 'human' at the forefront of what they do.

Right
In an increasingly digital world, tactility is becoming more important than ever before. The pleasing way a Nokia Lumia gently sits in the hand is just one way a human element is brought into Nokia's design language.

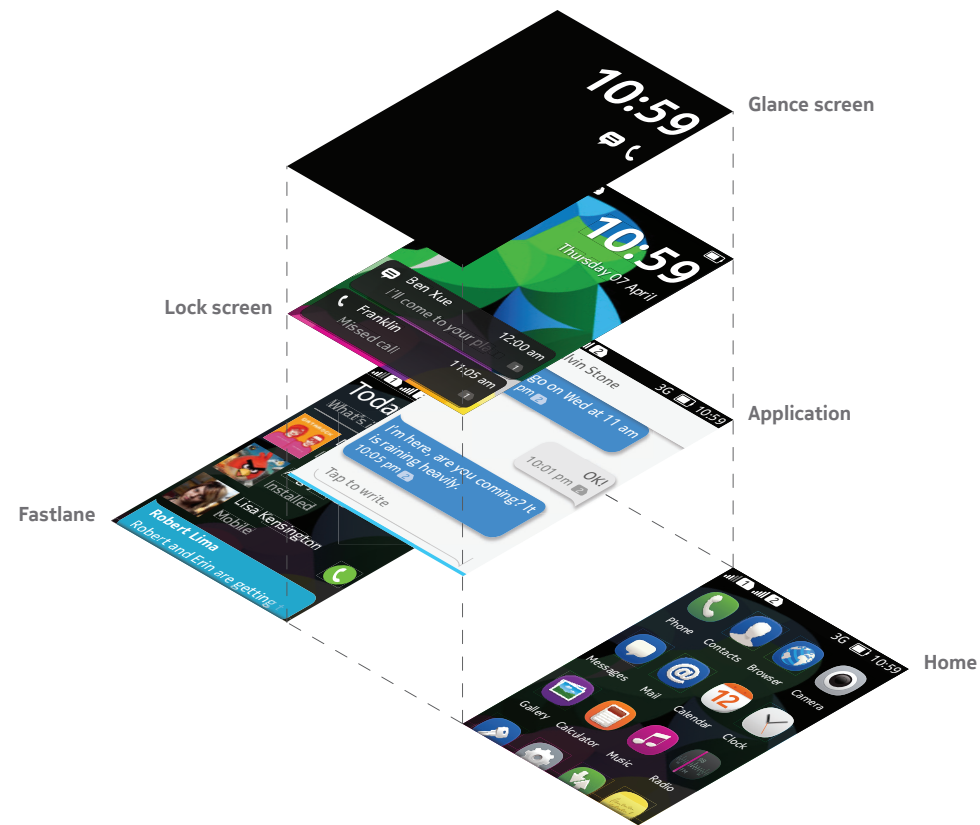


Above
LiveSight, a HERE Maps feature, helps the user navigate using a topological view of the world around them.

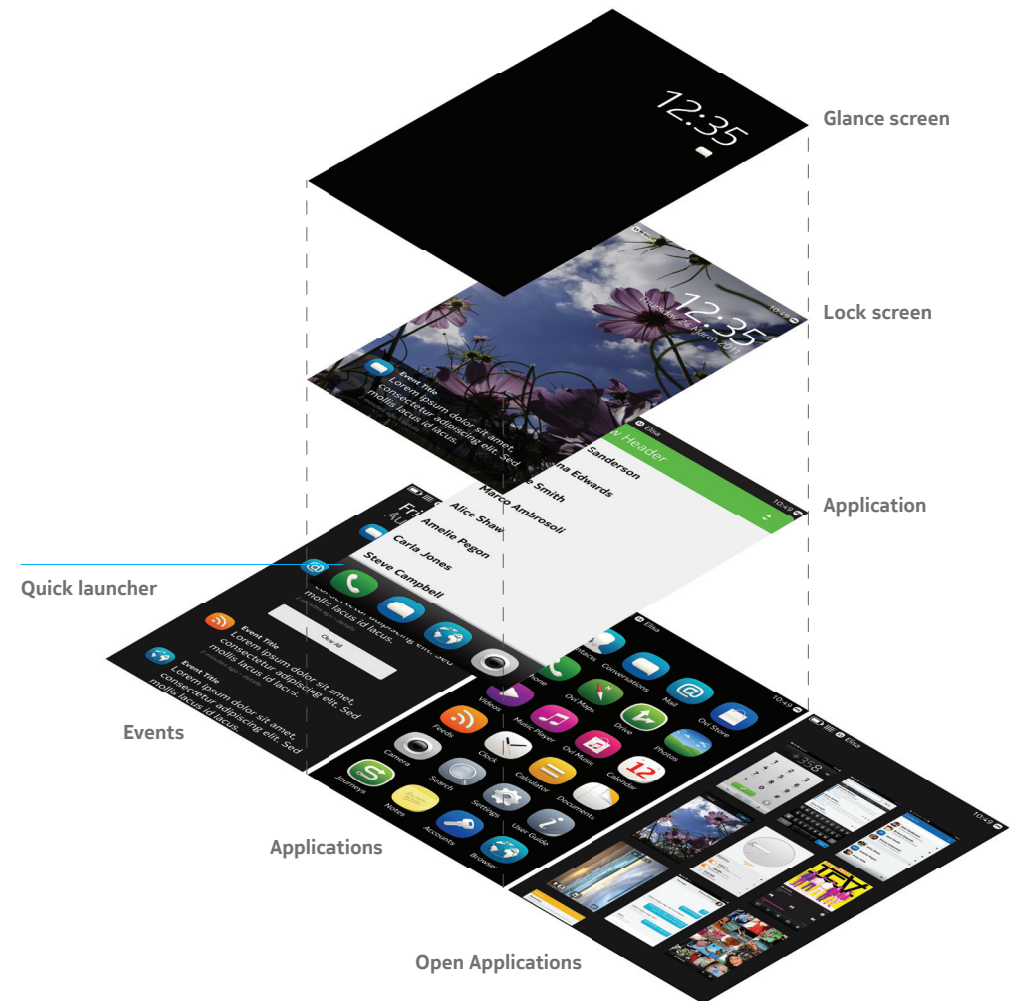
Left
HERE, a Nokia business, offers personalised maps, navigation and public transport information with an advanced hybrid architecture that allows customers to avoid expensive roaming charges while traveling.

Right
The designers of hardware and software both need to rapidly prototype and visualise design solutions. The user interface is where hardware and software meet and the heart of any user interface is the mental model. These design diagrams depict the mental models of user interfaces for the Nokia N9 and the Nokia Asha family of affordable smartphones.

NOKIA ASHA



NOKIA N9



PURE DESIGN

An honest approach to materials and process is characteristic of Nokia's design. There is no 'small talk' here. It is relentlessly reductive, stripping away all that's unnecessary so that only the essential forms, systems, materials and information remain. Uncluttered, unencumbered by fashions or trends, the Nokia way of making things is intuitive, direct and no-nonsense.



Tell me about the Nokia approach to materials. How has this changed and why?

Stefan: We have a materials-based design approach. Which means that we're always thinking about what a material can do and designing towards those capabilities.

I imagine that once you began that method of thinking, it was impossible to go back.

Stefan: If I walked into a room and said, 'OK, that's great, but let's slap some metal on this thing,' our designers would look at me like I'm crazy. They'd ask, 'Why would we do that? What is the reasoning behind it?' Absolutely, this way of working creates a strong value system. And that creates the identity, ultimately, of a consistent portfolio.

What made you settle on polycarbonate as a signature material?

Peter G: Plastic is such a familiar, commonplace material and we were looking for a material with radio frequency transparency and polycarbonate, along with glass and very few other materials, is excellent. For us, the material is integral to designing an efficient, innovative product.

What results has polycarbonate given you?

Peter G: It gave us the monobody design, which is an important innovation and used across our Lumia family.¹ Plastic is a great material because you can injection-mould it into almost any shape. We then found that, if we used machines originally designed for cutting metal and slowed the speeds right down, we could cut the plastic very effectively and with a high level of precision. We got more out of injection moulding by this post-processing, and from this evolved an approach for the whole portfolio of objects.

How does this 'honest' approach to materials reflect a wider ethos?

Peter G: This is about understanding what is the best material we can make an object from, and what is the best we can do with it. I have a Tapio Wirkkala quote that is very useful: 'Material always entails opportunities. It's as if it urges one to create something out of it.' He had a way of conversing with a material and understanding its properties. There are some things a material lends itself to and some things it doesn't. And if you work with this you will get a beautiful result.

Is there an equivalent to that materials story with the user interface? Is there a similar way of thinking?

Nikki: We have an honest approach. We make things simple to use while being very advanced at the same time. We strip out the unnecessary and keep what is practical and beautiful.

What made you choose CMYK colours for Lumia products?

Peter G: As we were experimenting with materials and polycarbonate, we decided to stop applying colour with paint and started using the resin itself as the colour. The pigment is the material and the material is the pigment. It's no accident that we ended up with CMYK² as a palette. When CMD³ did a study, they found that these worked best because they are the process colours. We used colour in this way for the first time with the N9 and the Lumia 800. CMYK made a lot of sense in terms of making the brand more recognisable.

Nikki: The inherent colour means that if you scratch or drop your device the colour doesn't come off. The colours we used initially were cyan, magenta, yellow and black, the 'key' colour. And then we started to introduce other colours such as the red in the Lumia 920, which is a mix of those initial pure colours. It is very satisfying, this consistency of approach between the industrial design, the digital design and the colours.

Following pages:

Left

Nokia has exploited the natural properties of polycarbonate in its monobody designs. The material's fluidity, toughness and ability to hold colour have been a great inspiration. An evolution of the monobody is the 'crystal clear' finish: a layer of coloured polycarbonate covered by a clear resin.

Right above

Colour has become an important expression at Nokia. The original CMYK palette was recently extended to include an additional range of colours.

Right below

Nokia accessories include the Purity Pro Wireless Stereo Headset, Nokia Luna Bluetooth Headset and JBL PlayUp Portable Wireless Speaker. The accessories extend the functions of a Nokia phone into a wider environment.

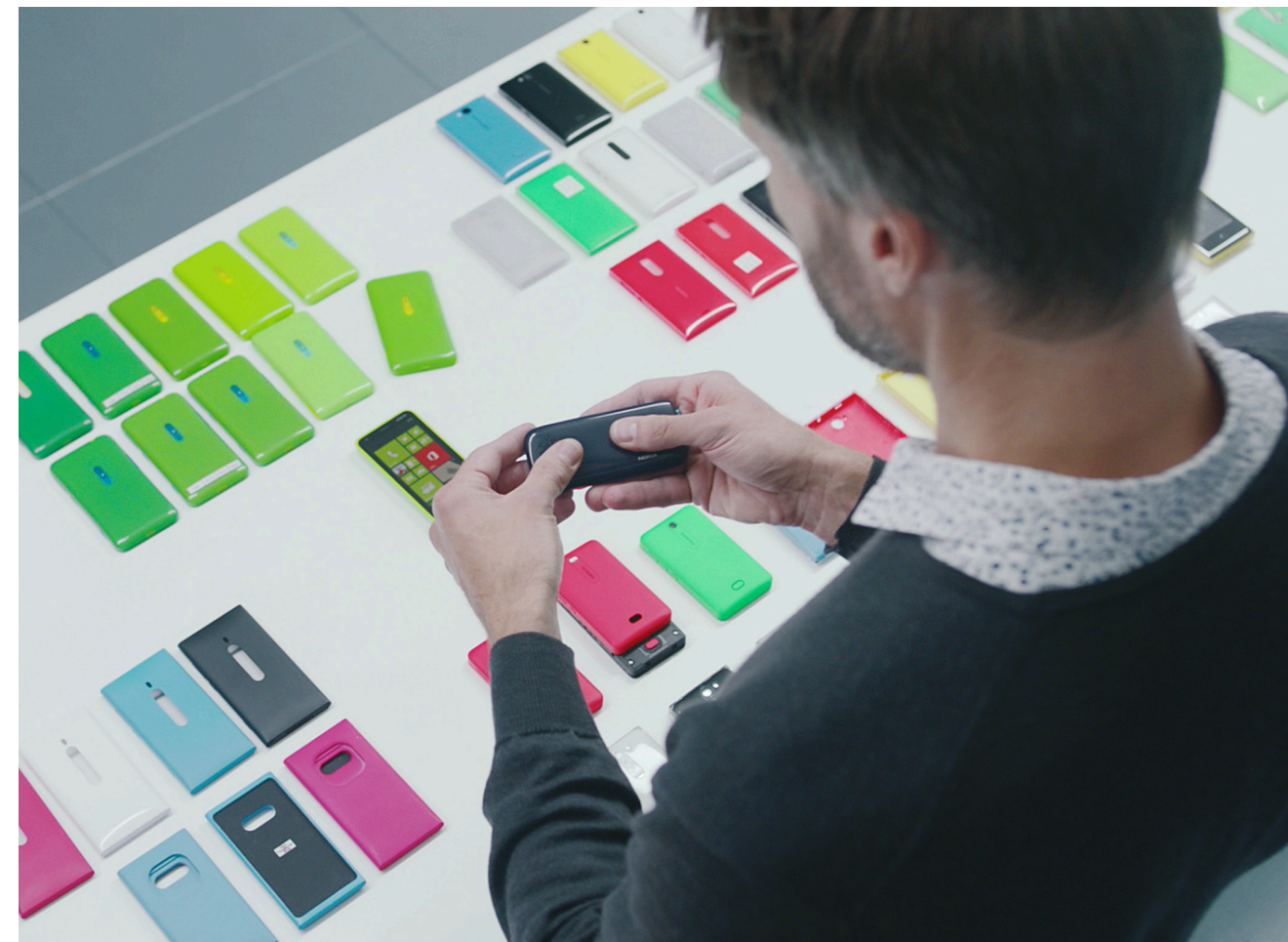
¹ The monobody, a two-part construction that improves structural strength and robustness, was first used on the Nokia N9 in 2011. The polycarbonate monobody is used widely in Nokia's portfolio, but there are exceptions, such as the evolutionary Nokia Lumia 925, which has a metal band running around its middle.

² CMYK stands for cyan, magenta, yellow and the 'key' colour, which is black. CMYK is a process-colour model used frequently in colour printing.

³ CMD is the Colour and Material Design team within Nokia Design.

**We have a materials-based design approach.
Which means that we're always thinking about
what a material can do and designing
towards those capabilities.**

STEFAN PANNENBECKER



BUILT BETTER

There is a work ethic in the Nokia design studio that focuses on the principles of perseverance and quality. In many ways, some of the design decisions are illogical: for example, drilling holes takes longer and creating curved glass costs more. Yet they are made because everyone believes that a better quality product, and a better quality experience, will come of it. It's a craft-like mentality that Nokia enjoys, which is an unusual concession for a technology brand to make.



How is Nokia's approach to manufacturing different to that of other technology brands?

Stefan: We spend a lot of time on research and investigation, and we strive to build better, meaning we really live in the details and try to find the best way to manufacture things. So, in a sense, a designer needs to be a little bit of an engineer as well. We need to be interested in the areas that are outside our traditional core capabilities.

Peter G: Being a furniture designer originally gave me a certain way of looking at the world. I think how we work at Nokia is very similar to that. The very best production technologies and processes today are difficult to master: they require skill. There is a clear element of 'the hand' present in what we do, whether that's working out the progressive stamping of this part, the machining of that, or producing the monobody. It wouldn't work if we simply drew a shape and then handed it over to the engineers and said, 'OK, make this'. They would then produce an approximation. Understanding how a production line works is the same level of understanding that you would need if you were working in a workshop and just making one or two.

Craft and industrial design aren't so far apart. Maybe this is where design fits into the contemporary world. We are making that connection between how something is conceived, how it's built and how we use it. Interestingly, the digital design team at Nokia talk about pixels as if they are physical things as well. Like building blocks.

What are the areas where built better really makes a substantial difference?

Peter G: My entire team gets up every morning, comes to work and designs mobile phones. We do the same thing over and over again, but that creates an opportunity. Every time we do it, we do it a little bit better than last time. That led to this idea of 'built better'.

Now we even treat what happens beneath the hood of a phone as another user interface. See this line that runs around the edge? That is a drip groove: it stops water getting into the key parts. We wanted to make it symmetrical. If the user sees that line then let's make it look right. We worked on the design and position of the label, which meant that we had to collaborate with care centres and with international distribution, among many other things.

It led us to be able to make a better user experience, in every small way. That's another very Finnish principle. Alvar Aalto said, 'The architect's task is to provide a gentler structure for life.'

In other words, bettering the everyday experience?

Peter G: Yes, for us, the impact of what we do translates into a better quality experience in those things that you do many, many times a day. There's always a temptation in a competitive market to be doing something that's really big and impactful. But the things that really matter are the things that people do many times a day. The results of our design work can be very subtle and maybe you don't even notice them. In this respect the Lumia 800¹ was an absolute milestone in terms of where Nokia is today.

Nikki: The creation of the Nokia Pure font² is a good example of attention to detail in user interfaces too; it really is key to the experience. In designing a digital font you need to be very aware of how many pixels there are to play with. You have to get the proportions right, have letters that work well together, but that are easily recognisable as separate forms. You need to look carefully at the width of each letter, the rendering of the font on screen and what the software allows you to do. And, of course, the end result should be so good that the user doesn't notice it.

How important is the consideration of how your customer interacts with their communication devices?

Peter S: We rethink the experience to make it relevant and personal. Providing a quality experience is important, but we need to have an emotional relationship with our users beyond utility. They need to trust the product. And that comes down to the details. As a brand we could do more of the 'shiny things' that might get attention, but we are interested in making the best quality experiences we can.

The challenges of software are very different to those of industrial design. Sometimes even a 30 millisecond delay matters, so you have to be obsessive about the detail. Here, performance isn't just a feature, sometimes it's the only feature.

Stefan: We aim for seamlessness in the physical product, but also in tasks such as when you charge a product or when you exchange content via NFC (Near field communication), where the physical act of two devices touching each other actually represents and initiates an exchange of information. We have these almost gestural, real world interactions replacing the pushing of buttons. And, of course, the phone demonstrates a similar kind of attitude towards form-giving in the digital space to what we have in the physical space.

How does the way you work influence your offering?

Peter G: Building consistency across the whole portfolio has added a great inherent strength on many levels. Each individual device is drawing from the same small group of details.

¹ The Nokia Lumia 800 was the first Nokia phone to use the Windows Phone.

² Nokia Pure is a bespoke font developed by Dalton Maag for Nokia. The new font family had to reflect the traditions of Finnish design: simplicity, clarity, functionality, beauty of form. It is currently used only on Nokia's mobile phones.

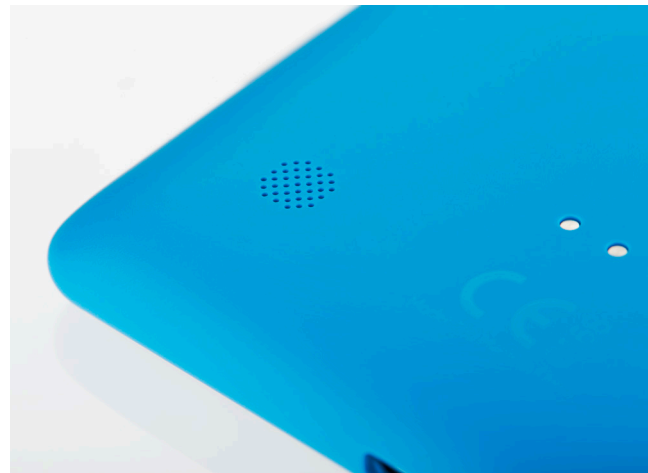


Nikki: The Nokia accessories collection is an example of how the family of Nokia products is extended and how the idea of the functions of what we do exist beyond the device. Examples are the Luna Bluetooth Headset or the PlayUp Portable Wireless Speaker. You can extend the phone experiences, as we do with Mix Radio³, across different hardware products.

Stefan: There are many great products, all sharing common values. From products like the Lumia 720, which although relatively low cost has all the characteristics of this recent generation of Nokia products, to the 206⁴. You could say the colour or the material is the point of interest with the 206, but it's almost impossible to put your finger on what makes it so particular. There is a unifying idea, and a fearlessness, behind all these products.



Along with our interviewees we would like to thank some more people from the Nokia design studio: Andrew Gartrell, Anton Fahlgren, Benoit Rouger, Joakim Karske, Joeske Schellen, Jonne Harju, Juhani Haaparanta, Luke Johnson, Nicola Ralston, Niilo Alfthan, Raun Forsyth, Roope Rainisto, Shunjiro Eguchi, Sondre Ager-Wick, Stephen White, Tapio Hakanen, Timo-Pekka Viljamaa and Ulla Uimonen.



Above
Speaker holes and headphone jack details from Nokia Asha and Lumia devices displaying superior finish quality.

³. Mix Radio is a free music streaming service that is available exclusively on all Nokia Lumia smartphones.

Right
The back of a phone is treated as another user interface and great care is paid to the visual impact of even the most minor technical details.

⁴. The Nokia 206 is an accessible low-cost feature phone. It makes the seamlessness, purity and craft reminiscent of the Lumia devices available to those who choose a simpler phone.

We treat what happens beneath the hood of a phone as another user interface.

PETER GRIFFITH





NOKIA

NOKIA

1982 1st Generation: Analogue
1984
1985
1986
1987
1988
1989



1990
1991
1992



1993 2nd Generation: Digital
1994
2310 2 Softkey UI
1995



1996 8110 First pivot display
9000 First communicator
1997 3110 Taz-key UI style: Simplex
6110 UI style: Jack



1997



1998 Introduction of 2.5G



1999 7110 Taz-roller UI style: Jackie



1999



2000



2001 7650 Series 60 Smart phone UI style: Avertit



2001



2002 7210 Series 40 UI style: Jack 4
6650 3 Softkeys and portrait display in Series 40 UI style: Douglas 5



2002



2003 6230 Series 40 3 Softkeys UI style: Douglas 7



2003



2003



2004 7290 No alphanumeric keypad UI style: Douglas 7
7710 Series 90



2004



2004



2004



2005 6680 Series 60 active standby UI style: Avertit Series 60 2.8
6270 Today's Series 40 UI style: Douglas 8
770 Internet tablet Touchscreen System: Linux/OSo UI Style: Maemo Platform



2005



2006 880 Landscape UI UI Style: Avertit Series 60 3.0



2006





2005

6690 Series 60 active standby UI style: Avertell Series 60 2.8
6270 Today's Series 40 UI style: Douglas B

770 Internet Tablet Touchscreen System: Linux/OSo UI Style: Maemo Platform



2006

N80 Landscape UI UI Style: Avertell Series 60 3.0



2007

N95 UI Style: Avertell Series 60 3.1



Achieve/Connect/Explore/Live



2008 — Avertell Series 60 3.1



This and previous page
A poster showing phones made
between 1982–2007 is an
insight into Nokia's design past.
Now-iconic designs were created
during this period of intense
evolution which secured Nokia's
position as a technological,
communications and product
design innovator.