

A Developmental Journey

Developing an effective, desirable medical product isn't without its challenges. Blatchford Clinical Services' approach was to seek the opinions of the users, carers and healthcare professionals leading to a journey of several years and many late nights...

Development Team



Users

Carers

Engineers

Therapists

Rehab Engineers

Clinical Engineers

Industrial Engineers

Marketing Professionals

Orthotists

What are we aiming to achieve?

Project Goals

Stage 1 - Initial Concepts

Begin to define a visual language that best communicates Blatchford's aspirations. Determine what those aspirations are.

Explore modular seating design concepts focusing on core visual and mechanical 'themes'. Provide a platform for mechanical brainstorming. Begin to identify strongest themes most likely to fit with Blatchford's internal capabilities.

Stages 2-3

Brainstorm potential mechanical solutions exploring core chassis direction, peripheral component configurations and interface surfaces.

Choose most appropriate scheme to develop and refine.

Articulate product values both visually and mechanically.



Three Themes

Anatomically Sympathetic

"I love this person and I want them to have as normal a life as possible. I want them to be comfortable as they will need to be in this seat all day. The seat needs to look and feel as though a person was meant to be in it. The chair design appears to recognise that the person needs to feel 'included', providing a softer more approachable feel. The design is 'familiar, sensitive and seems to fit like a soft leather glove."

Soft Dynamic

"I love this person and I want them to have as normal a life as possible. The person may have a disability but they are young and they need to feel part of the gang. The seat looks lithe and flexible; everything seems to adjust so easily and I feel it will make everybody's day that little bit easier. The seat design appears to say "nothing's going to stop me getting on with my life".

Technical Precision

"I love this person and I want them to have as normal a life as possible. I need the best performance from their seat possible. We try not to let their disability get in the way so the design has to give us maximum freedom through thoughtful, well execute engineering. I know it's the best currently available and it reminds me of precision sports equipment, maybe even a little Formula 1 influence.

What will the product need to say?

Fluid Dynamic

Supple

Movement

Emotion

Adventure

Confidence

Life Affirming

Robust

Reliable

Engineering

Background

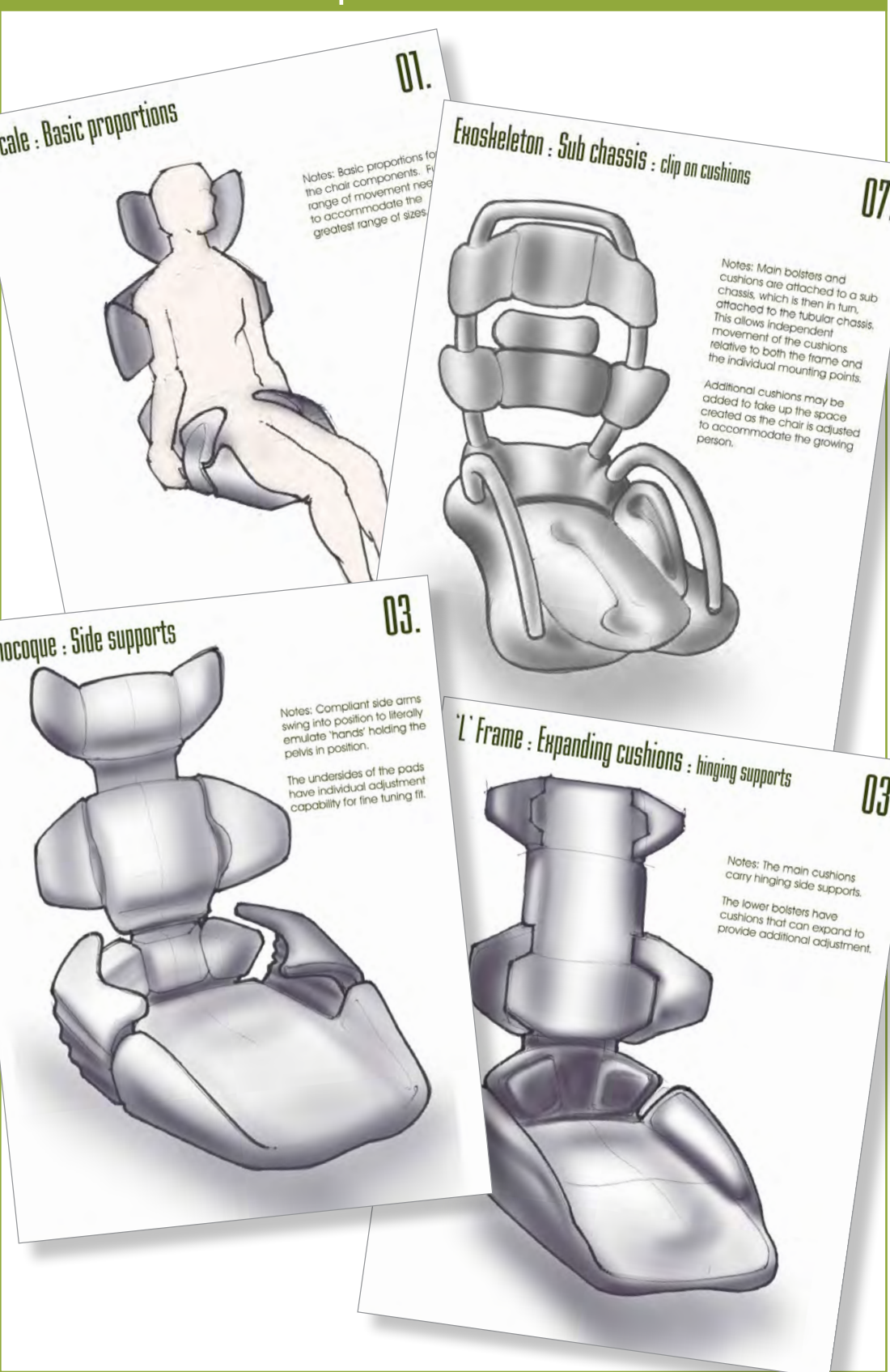
There was a clinical need to design a modular seat that would offer significant advantages over existing products in the seating market place. This presentation sets out to describe the market research conducted and clinical considerations in designing and building a new modular seat that provides optimal posture management, cost effectiveness and is desirable to the user.

It is widely accepted that pelvis position is a critical success factor in posture management; pelvic control should therefore form the foundation of any specialised seating device. Blatchford conducted market research, interviewing both clinicians and end users, to understand their requirements for a clinically effective and desirable seat.

The results were analysed along with a review of existing modular seating to identify the required design features which formed the basis of the design concept:

- Desirable appearance – not like a piece of medical equipment
- Effective and adjustable control for pelvis, trunk and thighs
- Adjustability for the chair to grow with the user
- Backrest angle adjustment for specific users
- Lightweight
- Available off-the-shelf and with fast delivery
- Ease of use and cost effective
- Meets the requirements of ISO 16840

Initial Concepts



Development of Ideas



The Results

Seat design: the seat has a modern contemporary design. Families have asked that the seat looks "non-medical" and fits well within the home environment. The fabrics are soft with an element of stretch so that the body becomes immersed within the seat for comfort. The seat is designed so that we "see the person and not the chair".

Discrete, effective control: we believe in seeing the patient, not the seat. Nimbus is designed to control and correct only where it's needed. This provides a good sitting position and stability to improve control and prevent postural deformities whilst being comfortable. Our clinical trials found the improved position helps with trunk elongation, breathing, vocalising, motor skills, eating and drinking, interaction and comfort.

Quality and safety: this seat has been made to the very highest quality standards meeting and exceeding the requirements of ISO 160840/4. Clinicians and families have requested that the chair is robust and will stand up to the rigour of everyday life.

Pelvic control: control of the pelvis forms the foundation of Nimbus. Optimal alignment and stabilisation of the pelvis is achieved with adjustable pelvic support, allowing for pelvic tilt. For those requiring additional control, the unique pelvic cradle moulds around the pelvis to support laterally and posteriorly. Distributing the corrective forces over a greater surface area ensures a more comfortable fit.





a passion for posture

Dynamic back option: using custom made dampers the dynamic back is separate from the pelvic support and enables the patient to extend back but still maintain the desired sitting position. The resistance of the dampers can be adjusted to meet the varying needs of our patients. The back is lockable for use in transportation or if indicated, for example when eating and drinking.

Seat in a day: modular in design, Nimbus can be configured quickly and easily to exacting specifications, allowing it to be supplied at our seat in a day clinics. Nimbus can also be supplied through self-assessment prescription forms or by individual assessment by our experienced seating clinicians.

Adaptable: the new seat is a multi-adjustable modular seat with up to 15cm of adjustment in width, height and depth. This makes the seat easy to set up and with a wide range of add-on components will adjust to meet clients changing postural or growth needs.

Patient comments:

"We can see our lovely daughter as there is less seat surrounding her."

"This is the best seat I've ever had! I now sit straighter and in much more comfort."

"Our daughter has been better supported, more upright and has had reduced hospital admissions for chest infections."

Richard Earl
Clinical Lead - Seating