

# FINAL REPORT FOR C11 CYBER SECURITY AND DIGITAL INNOVATION CENTRE

April 2023



Prepared by: Rayelle Pentland-Smith  
& Professor Kamal Bechkoum

**C11** Cyber Security and  
Digital Innovation Centre

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## **C11 Final Report Outline**

This report is written to provide an update and final review on the activities and project performance of **C11 Cyber Security and Digital Innovation Centre** located at Berkeley Green Science and Technology Park (GS&TP) and the Park Campus computing building and course developments all of which are part of the University of Gloucestershire.

### **1. Project Overview & Objectives**

The 2017 Baseline evaluation for the development of cyber facilities at Berkeley Green and UoG Park Campus set out 4 very specific overarching outcomes for this project. These outcomes listed below, formed the backbone of the interim report and will be further reviewed below. They include:

**Outcome 1: Contribute to the economic growth in Gloucestershire (GVA)**

**Outcome 2: Improve cyber security skills in Gloucestershire, reducing skills gaps in the workforce and addressing skills shortages in the regional labour market**

**Outcome 3: Drive regional innovation**

**Outcome 4: Contribute to Business Growth**

### **2. Updated Project Achievement Register (PAR) objectives & outcomes**

#### **2.1 Revisions & Reasoning**

Derived from the Outcomes above, a Project Outcome Register (PAR) was developed laying out specific requirements for the achievements as above. As stated in the interim report, in 2019 a review was made of the Project Outcome Register (PAR). Revisions were made to align the expected objectives to the then current realities of the project particularly regarding the understanding of the internal and external markets, regional and economic developments. This review was undertaken with the close supervision of Mally Findlater, GFirst LEP Program Manager and ultimately approved by GCC (Gloucestershire County Council).

This PAR, available in Appendix 3 is the outcome of that review and has been the primary tracking document throughout the funding period. When read in its entirety, the PAR offers a quantifiable view of the success and failures of C11 as a project.

What can be seen in an overview of the PAR is the achievement of the vast majority of the stated objectives. The information below assists in further understanding the details and dynamics around this to provide a more comprehensive picture of the final results.

#### **2.2 Events since the interim report**

At the time of the interim report, the momentum of C11 was beginning to gain traction. We had a handful of large events booked for 2020, most notably the iSEEP (International Symposium of Ecology & the Environment), we were on track to more than double our bookings from the previous year (see PAR 9 in Appendix 3 for details) and a recent promotional campaign had supported the strengthening of the C11 brand and facility recognition.

As the Covid Pandemic struck, all public events were cancelled. For the majority of 2020 and into 2021, C11 as a facility was used solely by 'essential workers.' A small positive was that at that time, we were able to support ongoing nursing training that found our spacious facilities ideal in providing the necessary social distancing while undergoing critical in-person training.

As the worst of the pandemic passed and life returned to normal, we soon discovered that the need for in-person meetings had dramatically shifted. Our facilities now continue to be used primarily by our occupiers (those that rent office and incubation space), other tenants of the GS&TP site and University faculty. We support writing retreats for academic research from a number of UoG (University of Gloucestershire) faculties as well as away days, student experience days, team meetings etc. Appendix Four illustrates that if these University bookings were costed at our discounted rate, it would have brought another £14,000 of income to the facility.

In the annual review with Neil Hopwood of the LEP in 2022, he noted that the majority of PAR requirements had been achieved and that further detailed tracking would not be necessary. However, for the purpose of this report, efforts have been made to complete the tracking as much as possible.

### **3. Key Milestones & turning points**

From inception, it was clear that the challenge of achieving commercial success for C11 was significant. Below outline the critical milestones in the attempt to achieve the commercial and PAR outputs as required in the funding agreement.

#### **3.1 Build challenges**

From the inception of the project, the facility was intended to offer meeting space with a high level of secured access intended for specific security applications. However, it was only when commencing the remodelling of the existing building and construction that the full cost of adding these features became apparent. In order to comply with the specific requirements for the highly secure List-X space additional costs needed to be factored in (£92k).

#### **3.2 C11 branding strategy**

Early in 2019, with a change of management at C11 came a change of marketing strategy. The marketing approach of trying to drive increased footfall to C11 through ongoing workshops and short seminars had proven to be too expensive, too labour intensive and too much of a 'me too' strategy to be effective or productive. C11 was not in a physical location to encourage short, ½ day or evening workshops for an industry largely based in the surrounding cities. Additionally, these workshops, although needed by the business community, were becoming increasingly available from a large number of reputable sources.

The development of the C11 brand strategy was initiated to broaden the understanding of C11, not just as a facility but also as the centrepiece of the Cyber activities of the University of Gloucestershire. Using C11, which offered a physical identity to the brand, as the catalyst and

core of a brand identity has allowed the University to ‘use’ C11 to upgrade its reputational standing both locally and internationally. The C11 Catalyst diagram produced for the interim report is again offered in Appendix 4 to demonstrate the significance and influence the C11 brand has had. One significant outcome of this is the FHM Collaboration in Duren Germany, which is discussed more fully in Section 5.5 below.

### **3.3 Updating of Project Outcome Objectives (PAR)**

This PAR update is noted as a key milestone for the project as it re-aligned the expected outcomes to the reality of the current situation and thus gave all players involved a firm foundation upon which to build a plan. In the opinion of the authors of this report it also re-established a layer of trust and open communication between the LEP and the University that had previously been struggling.

### **3.4 Cyber course development and recruitment**

Computing courses, in general, and cyber programmes in particular, have seen a steady growth since the inception of C11. A growth in number of courses offered, at both undergraduate and postgraduate levels, as well as an increase, year on year, of student numbers. The University moved from offering one BSc in Computer Forensics to delivering a suite of courses related to cyber, namely:

- Degree Apprenticeship (L6) Cyber Security Technical & Professional
- Degree Apprenticeship (L6) Digital and Technology Solutions Professional
- BSc (Hons) Cyber Security
- BSc (Hons) Digital Forensics
- MSc Cyber Security – Certified by the NCSC
- Digital Skills Bootcamps

Table 3 below illustrates this growth.

**TABLE 3**

Subject UGT	Total number of new enrolments in Cyber related courses						
	2016/17 Baseline	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23 To Date
BSc Computer and cyber Forensics	79	79	83	76	24	56	55
BSc Cyber and Computer Security	42	104	166	159	64	151	138
FdSc Cyber Security		1	11	9	12	10	8
BSc Cyber Security			10	8	12		
BSc Computing		33	43	39	48		
BSc Computer Science						81	77
BSc Cyber Security delivered by IDM			49	33	19		
BSc Applied Artificial Intelligence					4	15	
BSc Computing Technologies					5	3	
DA Cyber Security Technical Professional					18	29	21
DA Digital & Technology Solutions						7	11
<b>Total per year</b>	121	217	362	324	206	352	310
<b>Total per year over baseline</b>		96	241	203	85	231	189
<b>Cumulative Increase from Baseline</b>		96	337	540	625	856	1045

Note: Enrolment figures from 2020 onwards have been updated to ensure consistency of data. All current figures are taken from UoG Reporting Team reports.

### 3.5 C11 Cyber Tech Symposium development

The development of the C11 Cyber Tech Symposium was another milestone initiated to promote the brand development and designed to showcase not only C11 but also the capabilities and competencies of the University.

The first Symposium held in June of 2021 was an online event (Covid influenced) attracting over 300 registered attendees. The day focused on **‘Bridging the Cyber Skills Gap’** and offered a range of academic, business and public sector speakers to inform, educate and participate in the discussions on the day.

By 2022, we were ready for a live event and held it at C11 with over 100 people attending including business people, academics, college and University students. The emphasis was on the **‘Protection of National Infrastructure’** and the speakers list included Dr. Saritha Arunkumar, Executive Security Advisor – IBM Security Command Centre for Europe, a Senior Executive from

the National Cyber Security Centre, and Dr Rachid Hourizi, Director of the Institute of Coding. The event was deemed another success in furthering the reputation of the University's cyber agenda and the role of C11. See appendix 5 for the promotional flyer.

### 3.6 NCSC Relationship development

The furthering of UoG relationships with key industry organisations can also be noted as supported by C11. In addition to achieving the NCSC certification for our MSc Cyber Security, a number of activities are delivered in conjunction with the NCSC, including:

- The University is a key member of the Golden Valley Development (GVD, home to Cyber Central (UK), a UK Government multi £billion project), chairing the Research Stakeholders Group, a consortium of universities in the South West (Bristol, Bath, Cardiff, UWE, USW) to define how universities can contribute to, and benefit from, the Cyber Central (UK) development. The University is also a member of the GVD's Cyber Leadership Board
- The Head of School of Computing & Engineering was appointed by the NCSC to act as a Reviewer of applications from UK Universities wishing their courses to be NCSC certified.
- The University participates and hosts the CyberFirst events.
- The Head of School of Computing & Engineering chairs the Southwest CyberFirst Schools Awards Panel.
- Speaking at each other's events.

## 4. Limitations, problems and setbacks

### 4.1 Gloucestershire Science & Technology Park (GS&TP) development

The ongoing development of the GS&TP has been one of progress and setbacks. The renovation of the building B12 into the Sabrina Centre has been a strong and impactful addition. Other projects have been more problematic. Active Building Centre set up within C11 in 2019 – 2020 before taking on a number of their own buildings within the GS&TP. Unfortunately, upon the depletion of the initial funding, the project was not commercially sustainable and so has resulted in ABC selling assets and no longer operating at GS&TP. The loss of the Fusion bid burst another bubble for growth. So, while the South Gloucestershire and Stroud College University Technical College (SGS/UTC) remains successful overall the further development of GS&TP has not been able to capture the synergistic dynamics hoped for. It could be suggested that this has directly influenced C11's ability to attract clients and occupiers while from the opposite perspective, our marketing shortcomings could also be noted as having a negative influence on GS&TP's development progress.

### 4.2 Marketing challenge

*"in my experience, demand is hard won" "a big shiny building is not enough. Build it and they won't come..... we need to experiment with marketing and getting the word out."*

It is clear from the above that the marketing challenge of C11 were evident from the start. These quotes were taken directly from the 2016 Baseline Report.

While stronger or more effective marketing can certainly be suggested, as an expenditure this must always be balanced against other student focused marketing such as recruiting, teaching staff and facility development. In the post pandemic era staff recruitment challenges have also limited our marketing effectiveness.

#### **4.3 Covid / Change in work & meeting practise**

As with much of the rest of the business community, the Covid Pandemic has directly influenced and fundamentally changed working practises impacting C11. While conferences have returned to a limited extent, the demand for regular face to face meetings and general office space has been significantly reduced. With the demand for blended meetings (meetings that are both online and in person), the increase in user-friendliness of the technology and an ever-increasing awareness of environmental concerns it is reasonable to expect this trend to continue. That said, the demand for drop-in locations, space for occasional more formal meetings and the desire for networking opportunities remains an active need, as it evidenced in other cyber community locations. As C11 sits outside these central urban locations, it struggles to benefit from this activity.

#### **4.4 Golden Valley Development / Cheltenham centricity**

The C11 project agreement was signed in 2016 with the opening of the facility in 2017. This was several years before the initial public announcement of the Golden Valley development in March 2020. The significance and potential of the Golden Valley Development has dwarfed the much smaller outlying efforts (such as C11) and heightened the already existing 'Cheltenham centric' attitudes. While the pro and cons of this could be debated, it is offered here as merely one of the circumstances negatively influencing the success of C11.

#### **4.5 List X rooms – Lack of corporate engagement**

One of the biggest disappointments of C11 is the lack of utilization of the List X rooms, specifically designed for applications needing secure environments for information exchange. As we review the reasons for this lack of use, one first must reflect on information known from the onset. Below are excerpts taken from the 2017 Baseline Report section 6.1 Demand, reflecting on demand expectations.

*“The project’s business case found strong evidence of market demand. Asked how they felt this demand could best be met, those consulted for this baseline assessment were cautious, suggesting that the project would need to focus effort on securing business. Only one consultee said that he felt “like demand is there.”*

*Others commented in a little more detail:*

*“cyber security is a hidden threat and changing attitudes to it takes a long time. It’s hard to get SMEs and micro businesses to invest, many have their heads buried in the sand”*

*“in my experience, demand is hard won”*



*“a big shiny building is not enough. Build it and they won’t come..... we need to experiment with marketing and getting the word out. The University is already doing a good job raising cyber as an issue.”*

*“there is a demand for specialist facilities, but securing it means making a deal attractive enough.”*

*The consultees left no doubt that demand for the new services and facilities must not be taken for granted.”*

Baseline Evaluation of New Cyber Security Facilities at Cheltenham and Berkeley Green

While lack of sufficient marketing could be considered partly to blame, this could justifiably be balanced with the above-mentioned Cheltenham centricity. Additionally, it became evident well after the construction was complete that a much more sophisticated security control process is needed for the list x rooms to comply with the necessary security protocols used in the industry.

#### **4.6 SGS College relationship development**

While the intention of creating a fully developed pathway from college level through undergraduate degree may have been the hoped-for intention, it was found to be a difficult objective to achieve. Although the relationship with SGS as the management of the GS&TP and the SGS UTC (University Technical College) as the neighbour to C11 on the site was never fully developed, it did achieve a level of success. This could be evidenced most notably in the UTC student interactions with the C11 Cyber Symposium. We were pleased to have SGS UTC students supporting the day by assisting in support roles but more importantly were pleased to see a handful of cyber/computing students actively engaging in the discussions and content of the day. SGS UTC also made use of C11 for interview days, business experience days and leavers events.

## **5. Successes & Highlights**

### **5.1 Professional facility / enabled Sabrina Centre development**

In looking ahead for GS&TP and C11 as a facility, the future remains positive. C11 does much to improve the overarching image and professionalism of GST&P and presents itself as a modern, professional facility. It has been also suggested that C11 was a major contributor in the decision making of the Gloucestershire Constabulary in locating the Sabrina Centre on site. In fact, the look and feel of the Sabrina Centre are very reflective of C11.

### **5.2 Achievement of PAR Outcomes**

In reviewing the PAR Outcomes (Appendix 3), a measure of success is evident in many of the areas involving business and community contact. PAR 1 confirms the positive development of a number of key industry partners while PAR 2, 3 & 5 evidence the type and quality of events held at C11 and attractiveness as an incubation facility. All of which have met or exceed targets. Additionally, while our research contribution (PAR 4) also exceeds target is has been the overall

commercial viability of C11 that has let us down as noted in PAR 9. Additionally, as noted in Table 3 above, overall student numbers remain on a strong growth path.

### **5.3 Symposiums & Research Support**

The C11 Cyber Symposium has offered a further platform for the University to demonstrate and promote the capabilities of the students, highlight the research agenda of our academics, and provide opportunities to further embed local business relationships. The Cyber Tech Symposiums of 2021 and 2022 both showcased aspects of our student projects as well as highlighting the capabilities and depth of our teaching and research academics. PAR 9 also evidences the contribution of Research Income totalling £449,000, which is more than double the set target.

### **5.4 C11 branding & Webinars**

In the opinion of a marketer and one of the authors of this report, the success of the establishment of the C11 brand is one of the successes of the project. At the heart of this brand identity is a physical entity, a building. This allows the brand a reputational standing and credibility that goes beyond just another logo on a page. As a physical space, it signifies a commitment and intent which has enabled the University to assert itself more aggressively into this dynamic and sometimes closed industry.

As a further marketing activity, the C11 Webinar Series was established to highlight current issues in the cyber industry and to again bring together business, academia and government through ongoing webinars. These are provided over lunchtime and hosted by Ali Al-Sherbaz, the Academic Subject Lead of Cyber and Technical Computing for the University. The webinars hosted a range of professionals and topics see Appendix 6 for related Press Releases, some of which are highlighted below;

- National Cyber Security Centre – offering insight to current government concerns
- Patents & Intellectual Property Protection
- Cynam – promoting the services and association as a leading regional cyber business association.
- Ascentor – offering perspective on protecting supply chain infrastructures
- Department of International Trade – with update from around the world
- COP26 follow up- correlating how the cyber industry can support critical environmental concerns.
- Great Chatwell Academy – offering insight into anti-money laundering.

### **5.5 Germany – FHM**

The collaborative partnership with FHM, a university based in Duren, Germany offers one example of the catalyst effect of the C11 brand. This collaboration was based on the C11 business model, whereby a triple helix approach is used, involving the private sector, government agencies and academia working together to deliver a safer place to work and live. The Institute of Cybersecurity and Digital innovation was launched just over a year ago, benefitting from over £6m of funding from the German Government. The University is currently working with FHM and the Duren County Council delivering a cybersecurity programme ranging

from skills (through UG/PG courses and Bootcamps) to knowledge exchange activities supporting the local economy. This model, originally based on C11, is now hailed as a success by the German Government that we have been approached to set up a similar centre specialising in Hydrogen Technologies!

## **5.6 Overall positioning of the University as a Key Player in Cyber Education & Knowledge Exchange**

Arguably, this has been the best outcome from the work the University carried out in relation to C11. The centre played a significant role in positioning the University as a key player in Cyber Education and Knowledge Exchange, notably in the following areas:

- Being a founding member of the national Institute of Coding. This has led to the University being connected to most universities working in partnership with industry representatives on digital skills in general and cyber in particular. This culminated in the University securing funds from Government (DfE+OfS) to deliver skills-related activities such as the Digital Skills Bootcamps and the MSc Data Science.
- The role that the University plays in its participation in the GVD project (see section 3.6)
- The role the University plays within the cyber ecosystem, including invitation to participate in activities organised by the GVD, CyNam/Hub8, GFirst LEP CyberTech Group, Invest In Gloucestershire and others.
- Being invited by the NCSC to participate in activities related to NCSC certification, CyberFirst, and the NCSC Education Conference.
- International reputation and esteem – e.g. The ICDI in Germany, Reviewing EU Erasmus Programmes.

## **6. Lessons to be learned**

### **6.1 Location, location, location**

Although this was stated from the start in the original baseline report, the reality could not be clearer. The cyber focus for this region is in and around Cheltenham and Gloucester. Once the Golden Valley Development project became reality, this emphasis was doubly enforced. The southwest gateway has not yet become a reality and the linkage down the M5 into Wales is limited. The Bristol region continues to act quite autonomously. This has been an overriding and largely insurmountable obstacle in the commercial success of C11.

### **6.2 Broadening the scope of the C11 offering**

C11 has a future in offering a professional and stunning facility that could be used for a wide range of purposes. Given the realities above, it is suggested that the scope of industry that could be attracted to C11 be extended well beyond just Cyber and Digital technology. As the GS&TP is already heavily involved in sustainability and environmental applications, it would make good sense for this to be at the core of future C11 development. The reality is that the success of C11 will likely be closely linked to the overall success of Gloucestershire Science & Technology Park (GS&TP).

## 7. Where to from here?

### 7.1 Advanced discussions to agree “surrender” of lease to SGS

As this report is being written, negotiations are well underway for the surrender to the lease of C11 to South Gloucestershire and Stroud College (SGS). The decision has been made by the University to focus their cyber development activities in and around the Cheltenham / Gloucester area.

That said, the reality of a professional and attractive facility remains along with the expectation that it will serve the further development of the GS&TP site well. As the site continues to grow, the need for conference, networking and incubation space will continue.

## **Appendices**

Appendix 1 **Base Line Report**

Appendix 2 **Interim Report**

Appendix 3 **Project Achievement Report – Final**

Appendix 4 **University booking of C11**

Appendix 4 **C11 Catalyst Diagram**

Appendix 5 **C11 Cyber Tech Symposium Flyer**

Appendix 6 **Press Release Announcing C11 Initiatives**